THE SCHOOL REVIEW

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Educational News and Editorial Comment

DEFINING GRADES

The City Superintendents' and High-School Principals' Council of Kansas adopted at its last meeting a grading plan which aims to make clear to students and teachers what a given grade means. The plan, with its attached definitions, is as follows:

The following qualities are observable in the high-school student and can be made the basis for deducting a valid estimate of progress in education: (1) scholarship; (2) initiative; (3) attitude; (4) co-operation; (5) individual improvement.

1. By scholarship we refer to the pupil's ability and skill in a comprehensive use of the subject-matter presented.

2. By initiative we refer to those spontaneous qualities that reveal the student as a group-leader and an efficient student.

3. By attitude we refer to the pupil's apparent point of view in matters vital to his education and to the success of the school.

4. By co-operation we refer to the pupil's effort and ability to stimulate and contribute to the group accomplishment.

5. By individual improvement we refer to the pupil's progress in overcoming weaknesses of personality, objectionable habits, poor penmanship, and other difficulties.

The following letters are used to designate grades: A, B, C, D, and F, the last being the failing grade.

DEFINITION OF GRADES

Grade of A:

1. Scholarship—Exceeding expectations of instructor.
2. Initiative—Contributions exceeding the assignment.
3. Attitude—Positive benefit to the class.
4. Co-operation—Forwarding all group activities.
5. Individual improvement—Actual and noticeable.

Grade of B:

1. Scholarship—Accurate and complete.
2. Initiative—Stimulating some desirable achievements.
3. Attitude—Proper and beneficial.
4. Co-operation—Effective in group work.
5. Individual improvement—Showing marks of progress.

Grade of C:

1. Work in general of medium quality.
2. Work quite strong in one or more items but weak in others.

Grade of D (this grade might be produced by any variety or combination of weaknesses as the definition suggests):

1. Scholarship—Barely meeting assignments.
2. Initiative—Uncertain, not usually manifest.
3. Attitude—Not objectionable, usually neutral.
4. Co-operation—Not positive nor very effective.
5. Individual improvement—Slight, not positive.

Grade of F:

1. This is a failing grade and since it may result from any number of weaknesses is not defined.

Distribution of Grades:

This is a very important factor of this system of grading. Within the class and within the school it is expected that a proper respect be paid to the normal curve of frequency. However, the grades are not to be made primarily for the purpose of fitting the curve. The curve is to be used as a check to see what the "norm" should be under usual conditions and with large enough groups. It is expected that a teacher be able to justify his variation in grade distribution from the normal curve of frequency.

Normal Curve of Frequency:

The curve is built upon the following percentages: A—7 per cent, B—24 per cent, C—38 per cent, D—24 per cent, F—7 per cent.

FUNCTION OF THIS SYSTEM

With this code a teacher should grade carefully and be able to defend every grade given. It should be pointed out to the student with a low grade that he is falling short of the standard in some one of these valuable qualities. Teachers have long felt the need of definite points of defense when questioned about a grade, but these five desirable qualities need emphasis and should be

used in conferences with students. It is essential that students understand this system as thoroughly as do the teachers. This will give students a secure sense of direction in attempting improvement.

In this grading system teachers should bear in mind that grades are given on a comparative basis only; every student's work is to be compared with that of every other student with whom he works, and grades are to be arranged according to his ranking in the class. This will apply to every point under the "Definition of Grades" as scheduled. In no case is any grade to be translated to or thought of in terms of percentages, but students are to learn that if they make A or B grades, they are considered to belong to approximately the upper one-third of the class; if they are C students, they belong to approximately the middle one-third of the class; and if they rank below C, they are among approximately the lower one-third of the class.

WEIGHTED CREDITS

(Suggested by the committee but not recommended unless it received the sanction of the state department.)

1. Grade of A for unit subject, 1.2 units.
2. Grade of B for unit subject, 1.1 units.
3. Grade of C for unit subject, 1 unit.
4. Grade of D for unit subject, .9 unit.
5. Grade of F for unit subject, no credit.

(A copy of the plan in this form should be in the hands of each of your teachers. Also, each teacher should be expected to construct a curve of grades at the end of each period and hand to the principal or supervising official. These sheets and cards with the proper graph form can be obtained from members of the committee at cost price provided there is sufficient demand to warrant a continuance of this service.)

The part of this plan which is doubtful in the mind of the present writer is that which makes emphatic the advice on distribution of grades. Taken as a general guide, this table of distribution has justified itself under the present system of teaching. That there is grave danger of a purely formal use of the scheme of distributing grades is recognized by everyone who has seen the probability curve fall into the hands of those who do not understand its deviation and its limitations.

The committee which prepared the plan reported above has been careful to point out that the distribution is merely a guide and not a fixed formula. No effort should be spared to keep that part of the report far in the foreground so that "norm" will not be mistaken for "rule."

COLLEGES AND JUNIOR COLLEGES

Mr. Ryan, educational editor of the *New York Evening Post*, includes the following paragraphs in a report of the meeting of the Association of American Colleges:

The three-day session of the Association of American Colleges, which ended here this morning, definitely places the association as a determining factor henceforward in American education. To those who remember the somewhat dubious beginnings of six years ago the development is little short of marvelous.

Take the reports presented yesterday and this morning. Here was an organization only half a dozen years in the field—and part of these war years—laying down on the table carefully prepared and concisely worded statements of principles and application affecting American colleges.

Seldom has a better demonstration been afforded of the value of letting people do their own investigating.

Starting out with something of a note of protest against what was regarded as the imposition of severe standards from outside, the association is now in a fair way to set standards for itself that are notably more severe than anyone would have suggested for it, in such things as admission requirements, scholarship, and regular and honorary degrees.

Sentiment for rigorous standards was in part responsible for the decidedly chilly shoulder the convention turned to the paper by David Mackenzie, of Detroit, on the junior college. President Mackenzie has a really big conception of a unified educational plan. More than that he is actually running a junior college in Detroit of a thousand students, taught by instructors who have had both university and secondary-school experience, and are surely better equipped than were the college Freshmen and Sophomore instructors many of us knew to our sorrow fifteen and twenty years ago.

But Mackenzie talked in an exasperatingly cool way about eventually granting the A.B. after three years of intensive work and other departures from normalcy, and it was plain to see he horrified a group that had been conscientiously adjusting itself to self-imposed standards.

Dr. Wilson Farrand, of Newark Academy, made clear that as far as he was concerned he had no quarrel with the junior-college idea, but he did object to what he termed extending secondary education upward two years. Dr. Augustus S. Downing, of the New York State Department, explained that his department was withholding recognition of the new work chiefly because it was still in the experimental stage.

It is indeed a shock to most people who are devoted to the upbuilding of the college of the conventional type to find that the

junior college is expanding. It is a shock to a great many high-school people to learn that the colleges of the country must probably turn over to municipalities in increasing degree the support of Freshman and Sophomore courses. It is a shock to many people to learn that the college is going to be seriously affected in the long run by the oncoming six-year elementary school and by the new kind of a high school which is being evolved out of the junior high school movement. But the most wholesome advice that can be given to all such people is to prepare themselves as best they can for the shock because it is sure to become more intense.

The junior colleges, too, have an association. Before this editorial appears in print that association will have held its second annual session. It will not make any great difference to this new association whether the Department of Higher Education of the University of New York thinks of the junior college as experimental or established or whether it decides in its wisdom to lend it the influence of its acceptance or not. The main fact is that the junior college is here as one of those inevitable reorganizations of our educational system which expresses the determination of the American people to make higher education easily accessible to all kinds of young people.

It would seem to the student of educational history that the Association of American Colleges would do well to take this new institution seriously. The fact is that many of the members of the association are in reality junior colleges. A very large fraction of the small colleges of this country change their student population each year by 50 per cent. A great number of the colleges find that their students leave and go to professional schools after two years. Colleges of this type may refuse to think of the junior college as worthy of association with real colleges, but the time is not far off when this snobbish formula may rebound to their own disadvantage.

The wise course which should be adopted by everybody who is really interested in education as distinguished from the fate of some particular institution or institutions is undoubtedly that of getting acquainted as intimately as possible with this newcomer, the junior college.

THE JOHN HANDLEY FOUNDATION OF WINCHESTER, VIRGINIA

There are each year a number of new foundations and gifts in the different cities. As practically all of these gifts are in perpetuity, the sum grows from year to year, and the final total is beyond calculation. Beginning with the endowment of churches and universities, we have gone on to the building and endowing of public libraries, Y.M.C.A's and Y.W.C.A's, public parks, playgrounds, community houses, and many other things.

The John Handley Foundation of Winchester, Virginia, is an interesting recent gift to the public welfare. Mr. John Handley, a resident of Scranton, Pennsylvania, spent his summers in Winchester. He fell in love with the town and made it his heir. He built for it a handsome public library and left the balance of his property, which was to accumulate for twenty years, for the purpose of public education. This property is now valued at more than $2,000,000, and the annual revenue constitutes a handsome allowance for a city of 9,000 inhabitants.

The trustees of the foundation recently asked the General Education Board to make a survey of the educational needs of Winchester and to recommend what should be done with this income. The board recommended that it should be used for extra educational advantages above those provided by the ordinary tax rate, that Winchester might have a model school system. The school board called F. E. Clerk, Assistant Superintendent of Schools of Cleveland, to be superintendent. It has secured a site of about forty acres and plans by one of the foremost school architects, and is about to build a model school building one story in height, inclosing a good-sized rectangle.

This suggests a way that teachers themselves may leave behind a memorial which with the years may become of great importance in the home locality. One thousand dollars put out at compound interest for two hundred years at 5 per cent, would amount to more than $4,000,000, or $256,000,000 in three hundred years. It is thus within the reach of most teachers to create a great foundation that may in time be a dominating influence in the home locality.

H. S. CURTIS

BOARDS OF EDUCATION AND MUNICIPAL AUTHORITIES

The Secretary of the Public Education Association of New York City has summarized in a bulletin the struggle which is going on at the present time in New York State and especially in New York City to subordinate the schools to the authorities in control of municipal government. It has been pointed out in the *School Review* in discussing similar situations, as, for example, that which exists today in Chicago and also in a number of other large cities of the country, that the sharp competition for public funds is at bottom the cause of the numerous efforts which are being made to bring the schools under political domination. It is folly for school people to shut their eyes to the fact that cities are in real distress in their efforts to expand schools. It is a mistake to assume that more support is to be had by the mere asking. The fact is that municipal authorities are seeking control of schools because schools cost so much. It is not clear, even to them, what they are going to do about the matter when they get control, but we may be certain that they will not willingly give schools the preference in competition with material improvements needed, or thought to be needed, by the city.

As a concrete illustration of the extent of this struggle for control and as a vigorous statement of some of the dangers of political control, the following may be quoted from the bulletin mentioned:

> The first effort in the present session of the Legislature to strengthen the grip of the municipal authorities upon the control of the schools has appeared as Senate No. 50, introduced by Senator George R. Fearon, of Syracuse, and entitled, briefly, "An Act to Amend the Education Law in Relation to the Fixing of Salaries of the Supervising and Teaching Staffs in Cities."
>
> We are unalterably opposed to this measure.
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> The purpose and significance of this bill have been characterized by the Acting State Commissioner of Education as follows:
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> "It transfers the power to fix salaries of all members of the supervising and teaching staffs from the board of education to the board of estimate and apportionment, the common council, board of aldermen or other body having the power to fix salaries of city employees. It applies to all cities in which the salaries of superintendents, principals, and teachers are included in the city budget and raised by city tax.

"This bill if enacted into law would result in further confusion and conflict in school administration. It would practically nullify the control of school authorities over the city schools. It would tend to politicalize the teaching service and prevent the employment of teachers and their preferment in the service solely upon merit and experience. It deprives the board of education of a city of its responsibility for the efficiency of the supervising and teaching staff and transfers such responsibility to city authorities. The power to fix salaries carries with it necessarily the power to determine the qualifications and efficiency of the officers and employees affected."

To those who have followed the history of legislative proposals during the past few years, this effort to turn the schools over to municipal political control is not new. It is simply an old story with a new name. Perennially reappearing since the days when the present school system was first organized, this type of legislation has repeatedly met with failure. Nevertheless, like a sturdy weed it springs anew.

This Fearon Bill is likewise but another expression of the position of the present administration upon school control, made manifest last year in its attitude on teachers' salary legislation and in numerous bills seeking to make the school system more completely a department of the municipal government. It echoes the keynote of the Comptroller's eloquence at the Citizens' Conference on Education at the Chamber of Commerce last Saturday and reaffirms the position of our City Fathers that the Board of Education should not have financial independence. This bill aims to accomplish the desire to make the Board of Education little more than a rubber stamp or a pawn in the game of scheming politicans.

The attitude of the Public Education Association towards such legislation is emphatically negative.

We maintain today as we have in the past that the Board of Education should be the head of the local public-school system and as such have full power to formulate all policies and, under wise minimum provisions in the state education law, to determine the qualifications, number, and compensation of all employees needed to carry out such policies. The Board of Education cannot perform this function adequately unless its responsibility and control are unquestioned and unless it is granted by law an annual allowance sufficient to meet the needs of the department. To be fully effective the Board of Education must not be subjected to the annual mental abberations of opportunistic office seekers who think inevitably of votes and the tax rate first and of the children's welfare last.

The present intolerable situation in the New York City schools is largely due to the efforts of the city authorities to take unto themselves the destiny of public education and to place that destiny last in importance among other municipal functions. There is much in the way of improving the public schools that can be demanded of the school authorities alone, but until they are free to perform their legitimate duties unhampered the public cannot,

with justice, hold them strictly accountable for results. The first step toward real progress in the public schools, therefore, is to concentrate responsibility for public education where it belongs—in the Board of Education. This would at once clear away the present confusion in the public mind regarding responsibility and establish clearly the direction in which future public pressure can be exerted to make the schools fit places for the rearing of children.

The Fearon Bill proposes action in the wrong direction. It would place the schools more firmly in the hands of the politicians. It would intensify the confusion of control and responsibility that has made the administration of public education in this community a scandal. It should be promptly defeated. The energies of every public-spirited citizen should be exerted to securing legislation pointing in the opposite direction, legislation that will create a clear-cut, responsible, and energetic administration of our system of public education, lodged in the Board of Education.

THE "DETROIT JOURNAL OF EDUCATION"

The Detroit school system issued in December of last year the first number of an educational journal which is described as "published by the Board of Education in the interest of intermediate and high schools." The publication is more elaborate in form than most of the educational journals that are issued by municipalities. It has the form of a magazine. The first number contains eighty-three pages. The editor and managing editor are Superintendent C. L. Spain and Mr. C. C. Certain, of the Northwestern High School.

The introductory editorial indicates the scope of the *Journal's* activities and is as follows:

The *Detroit Journal of Education*, which makes its initial appearance with this number, is published by the Board of Education in the interest of intermediate and secondary-school teachers. While the circulation of the magazine must of necessity be limited, it is hoped that its outlook may be broad and progressive and that it shall stand for a forward-looking policy in education. It will undertake to reflect the views of leaders in education throughout the country, and each number will contain contributions by educators of national prominence. It will aim to stimulate and encourage teachers to apply the principles of research to all educational problems, and to this end will open its columns to meritorious contributions based upon scientific studies. The great social objectives are held to constitute the aims of all educational endeavor, and this magazine will promote a realization of these aims throughout the Detroit school system. It is expected that this periodical will exert an important influence in the development of a constructive educational policy in the intermediate and secondary schools of this city.

The *Journal* ought to reach other school systems and influence them to take the position that Detroit has taken so successfully, namely, the position that a school system can carry on its own routine most advantageously only when attention is given to careful, scientific studies of results and of plans of operation. The printing of articles with regard to the Detroit system itself will undoubtedly stimulate the officers of the school system more than any contributions that can be made by outside writers. At the same time other school systems can get a view of what is going on in Detroit in much greater detail than would be possible if the system did not have an organ for the presentation of such discussions.

The *Detroit Journal of Education* is a welcome addition to the increasing body of educational literature of a high grade which is beginning to appear in school journals of the modern progressive type.

CIVICS FOR HIGH SCHOOLS

A committee of the American Political Science Association presented at a recent meeting a report on the present situation with regard to the teaching of civics in American high schools. The report reiterates the statements which have frequently been made in similar documents in recent years, but it is perhaps worth while to bring to the attention of those who are formulating the curriculum of the high school the urgent necessity of creating a new body of material different from any that is now actually in use in high schools.

There is a very widespread conviction, as this report and others like it show, that there must be a radical change in the type of instruction given young people with regard to the nature and organization of society. The report concludes with the statement that there must be new textbooks and a better training of teachers. The repetition of this conclusion ought sooner or later to produce effective results.

The report in full is as follows:

> An authoritative definition of what should be included in the school curriculum under the heading of "civics" is urgently needed. Some years ago this term was commonly understood to include a study of political organization

and relations; but its scope has been steadily broadened until today it is customarily regarded as an elementary study comprising not only the outline of civil government, but some sociology, social ethics, economics, personal hygiene, and so on, all of which are presented in a very elementary form.

This extension of scope from civil government to other fields of social science is probably wise. The schools and the community seem to demand it. Teachers of civics, taking them as a whole, appear to approve the extension. It would be unwise, the committee believes, for the American Political Science Association to lend its influence to any rigid restriction of this subject within its original bounds. On the other hand, the extension of "civics" to cover so many other things is likely to result in giving the schools a subject which is far too broad for anything but the most superficial study. The association's committee of seven called attention to this danger several years ago and said that "thoroughness is one of the greatest, if not the greatest, need of the public-school system at the present time."

The committee suggests, therefore, that the association go on record as expressing its conviction that the subject of civics in schools should relate primarily to the study of civil government and political relations in the United States, although there is no serious objection to the inclusion of so much study of social and economic relations as may be necessary to give the pupil a fair knowledge of the environment in which he lives.

If it is desirable that a high-school course should deal mainly with matters other than government, the term "social problems," or "social and economic problems," or "elementary sociology," or "citizenship," or some other properly descriptive term should be used.

The aims of civic instruction, as stated in the report of the association's committee of seven, published in 1916, should be as follows:

1. To awaken a knowledge of the fact that the citizen is in a social environment whose laws bind him for his own good.

2. To acquaint the citizen with the forms of organization and methods of administration of government in its several departments.

In the case of schools the immediate problem is to bring to the mind of the pupil the fact that he is a living member of the community. The teaching of the subject should continually point toward active civic duty as well as toward civic rights. Scope and methods should be adjusted to this purpose, which means that the scope should not be confined to government alone and that emphasis should be put upon relations rather than upon facts.

One of the results of teaching government in the high schools should be to bring about an intelligent attitude toward the progress of political institutions along lines which are by the common consent of political scientists regarded as desirable. Intelligent instruction can achieve this purpose without degenerating into propaganda for reforms on which there may be a wide difference of opinion.

The teaching of civics in high schools has hitherto suffered greatly from the lack of trained teachers. Too often the subject has been handed over to some member of the teaching staff as an "extra." "The old textbook style of instruction with the memorization of constitutions, names of officers, etc., was relatively simple, and it is not surprising that the subject of civics was assigned to some member of the high-school faculty to fill an otherwise incomplete schedule."

The subject is of too great importance in the school curriculum to be treated in this way. It will not be handled properly until it is placed in the hands of teachers who are trained to teach it. Training in methods can now be had in most of the summer schools of the country; but it would be of service to those teachers who cannot attend a summer-school course if aids to teaching such as those which are available for teachers of American history could be prepared and placed at their disposal.

Let it be clearly borne in mind, however, that training in the methods of teaching is not of itself sufficient. A teacher of civics is not properly equipped unless an adequate knowledge of the subject has been used as the foundation of his or her training in methods of teaching.

No method will achieve results without trained teachers, but with properly trained teachers a general improvement in methods would not be slow in making itself apparent. No fixed set of rules can be or ought to be laid down as regards the proper method of teaching civics in schools. Every school should be encouraged to use its own initiative.

Yet in this, as in all other subjects of the high-school curriculum, there are some general principles which teachers of civics can follow without any sacrifice of their own initiative. In the nature of things a good deal of dependence must always be placed by teachers upon the textbook which is selected for school use, no matter how much this is supplemented by outside reading, discussions, debates, field work, etc. The improvement of textbooks is, therefore, an important matter.

NEWS ITEMS FROM SECONDARY SCHOOLS

RECORD CARD IN QUALITIES OF CITIZENSHIP

Oakland High School, Oakland, California.—The elementary schools of this city are recognizing on their report cards some of the elements of good citizenship, and the high schools are making personal-quality graphs. With the thought of placing additional emphasis in the mind of all high-school students upon the need for progressive development in social ideals and habits, a new form of report card is being tried out in the Oakland High School. A card is filled out for each pupil and sent to his home.

OAKLAND HIGH SCHOOL—STUDENT'S RECORD

.... No. .....
Subject Name (Surname First) (Advisory)

Term ending .....19... ..... No. .....
Instructor

Report Periods	1	2	3	Term	Parent's Signature	1:	2:
PROGRESSIVE DEVELOPMENT							
Open-mindedness							
Seriousness of purpose							
Assumption of responsibility							
Willingness to co-operate							
Thoroughness							
Initiative							
Systematic methods of working							
Knowledge of the subject							
Behavior							
Physical fitness							
Prompt and regular attendance							

Marking will be upon progressive development—1—Exceptional, 2—Satisfactory, 3—Fair, 4—Unsatisfactory. Elements contributing to progressive development will be checked (V) only when unsatisfactory. 1 or 2 will be necessary for recommendation to the university; 3, for promotion.

The following statement of "The Goal of Education in a Democracy" appears on the reverse side of the card:

In a democracy, a symmetrical training of the individual is all important. In the high schools of Oakland, the object of our work is to develop intelligent, efficient, responsible, and socially-conscious citizens. This demands that each course should really be a course in citizenship; that is, each individual student should acquire in each course not only a knowledge of the subject taught, but also those interests, ideals, habits, and powers whereby he may find his place and use that place to shape both himself and society towards ever nobler ends.

Accordingly, those qualities which have social significance are made the basis for determining the progress of the individual student.

The card carries a list of desirable social qualities, progressive development in which means growing fitness for citizenship. Pupils are made aware of the fact that they are under constant observation by proper officials, who are each term recording a careful estimate of their progress in civic moral habits. All doubt is removed as to what the school regards as essential in social deportment.

Initial experiences in the use of the card indicate that its effectiveness is greatly increased by small classes, by individualized instruction, by homogeneous grouping, and by a sliding scale of requirements for each of the ability groups.

ROY T. GRANGER

News Items from the School of Education of the University of Chicago

SUMMER COURSES FOR SUPERINTENDENTS AND PRINCIPALS

Superintendents and principals are returning to the University of Chicago in increasing numbers each summer to continue their professional training. During recent years the responsibilities of administrators and supervisors have become so numerous and complex that superintendents and principals are confronted with a large number of highly specialized and technical problems. Instead of giving all the problems which confront them equal attention, progressive administrators attack one problem after another during the course of a year, such as the budget and school finance, buildings and equipment, the selection of textbooks, and the improvement of teachers. In attempting to solve these problems it is frequently discovered that technical information and scientific technique are needed which were not provided in their earlier professional training.

In arranging the extensive program of courses which will be given in the School of Education during the Summer Quarter, 1921, these needs have been carefully considered. In order to provide adequately for supervisory officers of different levels of training and experience, three groups of courses have been included: (*a*) informational courses intended to summarize the facts now at hand in order to provide students with a comprehensive view of the problems which are studied; (*b*) courses which provide training in experimental, statistical, and historical methods of solving school problems; and (*c*) advanced courses which provide opportunity for carrying on research in specialized fields.

The following courses suggest the wide opportunity for the intensive study of particular problems which has been provided:

Introductory Survey Course in Administration, Superintendent E. E. Lewis and Dr. Carter Alexander.

Financial Organization and Administration, Dr. Carter Alexander.

An Advanced Survey Course of Administrative Problems, Dr. J. F. Bobbitt.

Public School Finance, Professor H. C. Morrison.

The Administrative Management of Pupils, Superintendent Paul C. Stetson.

The Teaching Staff, Superintendent E. E. Lewis and Superintendent Paul C. Stetson.

The Administration and Supervision of High Schools, Dr. George S. Counts.

The Junior College, Dr. L. V. Koos.

The Junior High School, Superintendent Paul C. Stetson and Dr. L. V. Koos.

The Administration and Supervision of Elementary Schools, Dr. William S. Gray.

The Curriculum, Dr. J. F. Bobbitt.

Industrial Education, Assistant Professor E. T. Filbey.

Vocational Guidance, Professor James W. Clarson.

The Psychology of Elementary and of Secondary Education, Dr. Charles H. Judd.

The Psychology and Treatment of Exceptional Children, Dr. Guy T. Buswell.

The School Treatment of Retarded and Mentally Defective Children, Dr. Clara Schmitt.

Mental Tests, Dr. F. N. Freeman.

The Use of Tests in Improving Elementary and High-School Instruction, Dr. Clifford Woody.

Investigations in Reading, Dr. William S. Gray.

The Supervision of Study Habits in the Junior and Senior High School, Assistant Professor R. E. Carter.

General Technique of Instruction in Elementary and in High Schools, Professor H. C. Morrison.

The Criticism and Supervision of Instruction in Elementary Schools, President H. A. Brown.

Statistical Methods, Mr. Karl Holzinger.

Experimental Methods, Dr. F. N. Freeman and Dr. Guy T. Buswell.

Methods of Historical Research, Dr. M. W. Jernegan.

RESEARCH FUND FOR EDUCATION

AN EDITORIAL[1]

The natural sciences were greatly stimulated during the war and after the war found it desirable to carry forward in the National Research Council an organization devoted to the promotion of co-operation in research. Something analogous is certainly needed in each of the social sciences. Especially is this true in the field of research as applied to school practices, where unique difficulties appear in co-ordinating scientific work.

A most significant step has been taken in the direction of providing for the promotion of broad educational research by the newest of the foundations, the Commonwealth Fund. This is a foundation established by the Harkness estate for the purpose of aiding in any worthy social or educational cause. It has been canvassing for some time the possibility of contributing in a productive way to public education and has finally established a fund for the support of research, amounting to $100,000 a year for a period of five years. The statement issued by the directors with regard to their method of procedure in establishing this research fund is as follows:

> The directors of the Commonwealth Fund, having become convinced of the importance of encouraging educational research, requested a group of leading educational men of the country to report upon the opportunities in the field and recommend a plan of operation.
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> This Educational Research Conference was held in Atlantic City on October 23, 24, and 25, 1920. The members attending the conference were: A. Ross Hill, President, University of Missouri, *Chairman;* Lotus D. Coffman, President, University of Minnesota; Charles H. Judd, Director, School of

[1] In view of the fact that the announcement included in this editorial is of major importance for the type of work which the journals published by the Department of Education aim to foster, the editorial will be published in both the *School Review* and the *Elementary School Journal*. This breach of our common practice will be easily understood as an effort to give as wide publicity as possible to an important contribution to educational research.

Education, University of Chicago; Paul Monroe, Director, School of Education, Teachers College, Columbia University; Leonard P. Ayres, Director, Division of Education, Russell Sage Foundation; Samuel P. Capen, Secretary, American Council on Education; Paul H. Hanus, Professor of Education, Harvard University; Max Farrand, General Director of the Commonwealth Fund.

A gratifying feature of the conference was that the members were able to agree so readily, not merely upon the large divisions of the field, which were fairly obvious, but also in selecting some of the most desirable problems to be investigated within each division.

The conference therefore made its report, choosing for its main subjects: the problem of school revenues; the evaluation, analysis, measures and standards of accomplishment of school subjects; the field of supervision; and the reorganization of public-school systems. In each one of these larger divisions the conference chose a particular subject by way of illustration, suggesting how and by whom the study of that particular subject might be advisedly undertaken.

For the carrying on of this research, the conference recommended the appointment of a committee to consider and recommend projects for research, and to assume executive responsibility for supervising the carrying on of such researches as might be adopted, and it was deemed advisable that this committee might also recommend researches to be undertaken by individuals or associations.

The directors of the Commonwealth Fund accepted this report, and appointed the following committee: Leonard P. Ayres, Vice-President, Cleveland Trust Company; Samuel P. Capen, Secretary, American Council on Education, *Secretary;* Lotus D. Coffman, President, University of Minnesota; Ellwood P. Cubberley, Professor, Stanford University; Charles H. Judd, Director, School of Education, University of Chicago; Paul Monroe, Director, School of Education, Teachers College, Columbia University; Frank E. Spaulding, Professor, Yale University; Max Farrand, General Director, the Commonwealth Fund, *Chairman*, ex officio.

There were several methods of supporting research open to the directors of the Commonwealth Fund. They might have followed the example of the Russell Sage Foundation and set up a special central bureau for such work. Under the direction of Dr. L. P. Ayres, the Russell Sage Foundation has produced a series of notable studies, including the earlier studies of medical inspection, and of laggards, and the later work on the writing and spelling scales and the comparisons of state school systems. It was the judgment of the conference at Atlantic City that such a form of organization would be likely to withdraw from existing institutions

a number of persons who are very much needed to train advanced students of education and, furthermore, such a central bureau or agency would be not unlikely to narrow its interests and deal with a more limited range of investigations than will be provided for under the plan adopted.

A second plan of organizing research which might have been adopted was that of subsidizing institutions which are engaged in research work at the present time. This is a familiar form of support dispensed by foundations. It contributes to the upbuilding of institutions, but usually leaves research in a particular field to compete for support with the other vital interests of the institutions, or else, through the establishment of special research institutions, tends to foster the same type of specialization that was referred to in the discussion of a central bureau under the immediate control of the foundation. At the present time, when universities are straining every resource to provide for abnormally large bodies of students, there are many examples of neglect of research because the general demands of institutional up-keep are so exacting. The Atlantic City conference was not in favor of an expenditure of the funds on the endowment of institutions.

There was another type of consideration which contributed largely to the decisions which were reached with regard to the method of organizing the responsible committee. There is great need in American education of some new method of promoting national co-operation in research along educational lines. In no field of scientific work are the dangers of scattered and competitive activities so great. The single worker, realizing that the limited time and funds which he can command will not carry him far, is eager to make as much of a showing as he can with his minor production. We see as a result a whole series of worthy, but comparatively trivial, pieces of research, carrying the names of their authors, until the number of personally named scales, tests, and conclusions on educational matters has reached the point where one can hardly carry in mind the encyclopedic array. The temptation has been strong under these conditions to magnify individual interests and to minimize objective results.

Furthermore, it has at times been very difficult to secure co-operation between institutions. Institutional leadership in research has in some cases been sought, not by the methods of encouragement of all who are contributing, but by systematic depreciation of all work which comes from other institutions. There can be no doubt that this form of institutional rivalry has held back the science of education in serious degree.

Mere gifts to individual institutions might ultimately overcome some of this pettiness by increasing the volume of production until educational science reached the level of the maturer social sciences, but the prospect seems remote. It is clear that one of the most important contributions which the Commonwealth Fund has already made to educational science is that it has set the example of broad co-operation. There will of necessity grow out of this spirit of co-operation a more wholesome view of the meaning of objectivity. There will be a submerging of petty rivalries.

One illustration of the need of co-operation can be given by commenting on one of the items which is mentioned, but not fully described, in the list of possible lines of research. The item in question is the fourth in the list, namely, "reorganization of public-school systems." During the last decade there has been spreading through all parts of the nation a reorganization of the upper grades of the elementary school, of the first two years of college, and of the whole structure of the high school. The movement of reorganization has been sponsored by no single group of leaders; it has had no single pattern on which to work out its changes, and yet it has shown astonishing vitality. A number of writers have tried to describe the movement, but clearly no one has compassed in any statement yet published its full scope and meaning. It is a spontaneous nation-wide movement toward a new kind of a school system.

Like all movements in our educational system, it has suffered at some points from mismanagement and has been held in check as a result of lack of a broad spirit of national appreciation of its significance. There is evident need of more than piecemeal description of single aspects of this movement. There is need of a

steady, broad canvass of general conditions, followed by careful testing of results and vigorous promotion of constructive changes. This means something more than sporadic partisan investigations; it means a persistent and comprehensive examination of all aspects of the reorganization that is going forward, and it also means encouragement of experimentation. The Commonwealth Fund committee should be able to promote such general investigations and as a result should be able to contribute to the general reorganization.

The Commonwealth Fund program is unique in that it does not duplicate the activities of other organizations and does not come into the field as a rival of any existing educational agency. It is sometimes pointed out that the national government ought to carry on educational research as it carries on research in agriculture. It is often said that state departments of education should make themselves responsible for the collection and distribution of more information of the type which will guide school practices. Municipalities are beginning in some quarters to see the importance of scientific tests and investigations as a part of their regular work. But the combined contributions of all these agencies are small as compared with the needs, for the reason that nearly all the energy that can be expended by any public administration must go into routine. The people of this country are slow to see the importance of public support of research, even when the efficiency of their institutions is involved. In some way or other there must be pioneer work which will demonstrate the value of scientific research. Such pioneer work always has to depend on private endowment or the personal initiative of single devotees to scientific methods.

The result is that most of the scientific work which has been done in education is the work of departments of education in universities, colleges, and normal schools. But such departments are also absorbed in routine—the routine of organizing and teaching classes of students. They have perhaps more opportunity than public administrative agencies to devote time to research, but they suffer marked limitations. They lack also in some instances the breadth of view that is needed in a period of general educational reorganization.

All these struggling agencies need a margin of additional support. They need to have a little more energy and a little more opportunity than is provided for their routine work. The administration of this margin must also be unlimited as to region or problems. It is desirable that there should be help for anyone who is working productively anywhere in the nation.

The Commonwealth Research Fund promises to be a source of exactly the kind of margin that workers in the field of education need. Temporary grants for particular pieces of work are possible on a generous scale. What is needed is definite and well-considered plans of action from all who can advantageously use this margin.

There will doubtless be, as there always is at the beginning of any such enterprise, a great deal of misunderstanding. Some people will think of this as a new source of institutional endowment and will ask that their institutions be endowed in order to carry them through some practical emergency or in order to promote their general activities. Some will think of research as a special type of propaganda. They will feel that the fund ought to be expended in the spread of ideas which they have long cherished as essential to the betterment of American education. Gradually such misconceptions will be overcome, however, and there will be a more general appreciation of the meaning and importance of research in education.

The requests for aid which were presented to the committee at its first meeting exhibited all shades of interpretation of the meaning of research. Those requests which received favorable consideration were the ones which set forth in detail and in exact form the problem to be attacked, the method of attack, the time at which a report could be rendered, and the resources both in the way of personal services and equipment necessary to carry out the research.

The secretary of the committee, Dr. S. P. Capen, and Professor Max Farrand, the Director of the Fund, who is also chairman of the committee, are the proper persons to address in presenting proposals or making inquiries. The former is to be reached at 818 Connecticut Avenue, Washington, D.C., the latter at 1 East 57th Street, New York City.

STUDIES IN HIGH-SCHOOL PROCEDURE—MASTERY

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In the two preceding articles of this series, I have discussed certain fallacies involved in high-school procedure and have attempted to show how they result in a kind of half-learning or no-learning which is cumulative in effect and which probably has disastrous influence upon the character of society in an age of universal education.

In the January number of the *School Review* I discussed the fallacy of lesson-learning and exhibited some evidence tending to show that there is little or no necessary relation between the learning of a lesson and the achievement for which that lesson or series of lessons is supposed to stand. I characterized lesson-giving as indirect teaching. I shall set forth in this article in substance what I mean by direct teaching.

In the February number I pointed out the fallacies involved in current marking, grading, and promotion; in the misuse of the normal distribution surface in school administration; in the abuse of intelligence or mentality ratings; and in ground-to-be-covered and time-to-be-spent and method-to-be-used. I attempted to show how the whole congeries of fallacies, the legitimate outcome of the graded system of school government and administration, has caught us in such a net that we cannot teach thoroughly if we would.

We need then, first of all, to get back to some solid ground from which we can make a fresh start in our thinking, if not in our practice. We can find that solid ground in the concept of mastery, in the old notion that what is worth doing at all is worth doing well. We at once, then, get away from percentages and passing marks and know only one objective, and that getting the thing done. You either understand a principle or you do not; there is no such thing as 70 per cent understanding. You can either do a

thing or you cannot; there is no half doing it nor three-quarters doing it. You may understand more of a subject than another, you may do a thing better than another; but understand or do you must. Mastery of Freshman mathematics does not imply mastery of the whole subject of mathematics. Ability to write the English language correctly does not imply ability to write it elegantly or forcefully. But every stage has in it the possibility of mastery at that stage. The youth who can write English, or translate Latin, or read French, or understand the principle of gravitation, 70 per cent as well as he is supposed to write or translate or read or understand has not achieved at all. He has only begun to achieve. Nor does mastery in school work involve any serious difficulties. It does involve a new conception of teaching and a new orientation in administration. It involves ceasing to measure a pupil by his average mark and measuring him by the excess quality of his achievement. It involves ceasing to evaluate our success by averages or medians of class achievement and beginning to measure ourselves, as other scientific workers do, by the percentage of our failures. And, be it said, we shall always have a percentage of failures.

The first step is, then, to have clearly in mind our teaching objectives. In any case an objective will certainly not be a bit of ground to be covered more or less well. In every case, it will be either a principle or body of principles to be understood or a power to be gained. The primary teacher has long had this as her objective. She seldom thinks she has accomplished anything by mere dint of hearing her class read through a book. Her objective is teaching her pupils to read subject-matter which is within their comprehension, and she commonly succeeds. And so the high-school teacher of mathematics has as his legitimate objective the understanding by all pupils of a succession of mathematical principles, not the correct working of a given number of exercises. Some may need to work more and some less, but each will work no exercise which will not contribute definitely and clearly to his particular understanding of the principle. Similarly, the teacher of French has as his objective the power of all pupils to read French, or, it may be, to speak French. He marshals all his

material with that end in view. He either succeeds or he does not. Each student either succeeds or he does not. The teacher does not venture to assign and hear lessons from a book, or hear pupils practice reading, and then conclude that all who have learned their lessons 70 per cent as well as they might have learned them can read French. As a matter of fact, most of them in such cases cannot read French, and later on others find it out.

We shall recur to the point later, but let us note here that the commonest ground of failure in teaching which has mastery in view is mistaking the material of learning for the actual objective. It is the persistence of the old fallacy of ground-to-be-covered.

Having settled upon our objectives and trained ourselves to keep them always in mind—in teaching, in supervised study, in testing—the next step is to outline our course in manageable units or blocks, and here a great deal of careful, reflective, scientific work needs to be done. If we are going to lead our pupils to mastery, we cannot do it at a single long leap lasting over a semester or a year. We must be able to check up from time to time.

In the content subjects and in subjects like mathematics or grammar, these units will be units of understanding rather than pages or chapters to be covered. Mathematics and grammar have always tended to do this. The sciences have approached it. History and literature have scarcely essayed it. Few texts in science or history or literature are written with such organization in view. I suggest typical units chosen from the current semester in our laboratory school.

A preliminary unit in elementary science, seventh grade, is the water supply. In the end, the objective is a picture in the pupil's mind in which are exhibited water running from the tap, its source, how it gets to the tap, and what makes it behave so. Closer scrutiny reveals one or more types of pump, the siphon, and various typical sources. The ultimate test is the pupil's ability to write a paper in the classroom, without notes or references, describing the whole process. If the picture is clear in his mind, he does the paper without trouble; if the paper is not clear, he does not understand.

In a later course, in physics, the unit is more abstract. A typical unit is density. In the end, if the pupils understand, they are able to discuss verbally or in writing, in a clear-headed manner, any ordinary situation involving the principle itself. The objective is the principle, not the customary lessons assigned and recited. Be it said that the teacher was obliged in the case in mind to go over the matter again and again before he succeeded in getting the desired "clear-headedness" in a part of the class.

In a course in modern history, a certain unit is the Industrial Revolution, and the objective is the understanding of the Industrial Revolution, with implications the same as in the case of the two science courses. A history unit to be *understood* contrasts sharply with a chronological series of historical events to be memorized.

In a course in any of the language arts, such as writing English, reading French, translating Latin, the objective, and the unit to which it corresponds, is ability to read, or write, or translate discourse of a given grade—correctly and understandingly and, of course, at sight.

In a course in literature, the unit is a given masterpiece, and the objective is clear appreciation of the meaning and message of the masterpiece. If the class, or a portion of the class, does not, on the appropriate test, appear to feel the message, then the teacher recognizes his own failure and goes over the unit wholly or in part again. In some cases—in the larger number, in fact—the objective is not appreciation of a given masterpiece but the cultivation of a taste for a certain kind of reading in a given pupil. The unit here is perhaps as long as the school life of the pupil. It is perforce individual work, and the teacher persists with his extensive reading procedure until he has attained his objective. A given pupil may show, frequently does show, little need of schooling in this direction. He is already a wide reader of growing and catholic tastes. He is released entirely from the regulation school requirement in this direction.

We have now organized our courses in blocks or units, each of them capable of mastery in terms of understanding or capacities or appreciation. We are now interested in the general procedure

through which we may be able to lead a class to mastery. The specific daily technique of classroom teaching and oversight is vastly important, but we shall have space scarcely to more than touch that whole subject.

The procedure may be summarized in the formula: Teach, test, and teach again if necessary.

Picture the physician in his management of a case. He diagnoses, prescribes, examines, modifies his treatment, and so on throughout to recovery or to the discovery that the patient is beyond his aid. We have a situation which is much the same. Our patient is a class of boys and girls. Recovery is mastery of a unit. Initial diagnosis shows us the present intellectual condition of the class and of the individuals of the class in terms of the objective to be attained. Treatment is teaching and supervised study. Examination of blood and urine, of heart action, and temperature, is in our case the laying of a teaching test to ascertain the effect of our teaching. The physician continues or modifies his treatment according to the revelations of his examinations. We modify our teaching in accordance with the evidence from our tests. The physician sometimes finds that his patient exhibits peculiar symptoms for which he cannot account, and he calls in a specialist. We have the same experience and are able to get some help, not much as yet, from the psychologist or the physiologist. The physician sometimes finds bodily conditions which make a cure impossible in the light of present knowledge. And so do we. We find a very low I.Q. with a bad corroborative family and school history, and we at once disclaim all ability to give the pupil an ordinary education. We do not give him a grade of even 50 per cent. The physician sometimes loses a patient and is unable satisfactorily to account for the failure. He has a very much better body of professional lore than we, and yet he fails. And we sometimes fail—not with the class but with an individual.

What sort of a test do we give? That all depends upon the situation in which we find ourselves. The teacher must devise a new test and a different test for practically every phase of his progress through the block which he is teaching. He is always looking for specific light on a specific problem. To fall back on

ready-made tests habitually is to become an indolent formalist of the most pronounced type. His test is usually a teaching test and not a test for grading his pupils. Properly speaking, the pupils should never know when a test is coming, should never know when they are being tested, should never know the result, except by inference. Of course, this is an ideal hardly attainable in full in practice, and I am speaking of teaching tests and not of examinations. The objective before the pupil's mind is understanding or power, not the opportunity to compare his work with his fellows' marks. About the only case in which there is genuine pedagogical advantage from attracting the pupil's attention to his own standing is that in which he can readily gauge himself directly and not by comparison with his neighbor. The best illustration here is the handwriting scale.

The teaching test is of value only as evidential material. Its value as an absolute criterion is almost nil.

In the first place, only the evidence which is material is considered. In a mathematics test, the clerical errors may be so many that no question could be graded perfect, if we were grading at all, and yet the evidence of the test may point to perfect comprehension. The clerical errors are evidence of carelessness and the pupil will have to do the work over again until he can put in a perfect paper, but as evidence to the main point at issue they are excluded.

A test is but one piece of evidence, albeit the most important piece. The teacher must be so good a supervisor that all through the supervised-study period he has been gathering in his mind a mass of evidence such as to make the test almost a foregone conclusion. A pupil may pass in a flawless paper, and yet, in the light of corroborative evidence, the teacher may be justified in concluding that the pupil is weak in several points. On the other hand, a pupil may fall down completely on one or more points and yet, in the light of corroborative evidence checked up by subsequent questioning, the teacher may conclude that the pupil is perfectly sound. Even with the finest instruments of precision known to science, applied to the measurement of unyielding and unvarying objects, the physicist or the astronomer is not content with a single observation.

The teaching test itself must be under constant scrutiny. He is a wise teacher who can make a test, no part of which ever miscarries. It is only by long practice in making tests in the schoolroom that the teacher arrives at the point where his percentages of miscarriages are at a minimum.

The point at which the average teacher finds it hardest to acquire a new orientation is in his own attitude to the results of tests. Teachers think of tests as means of measuring pupils. A teaching test is always a means of measuring teaching, only that and nothing more. The moment it becomes, either in the mind of the teacher or the mind of the pupil, a means of measuring the pupil, at that moment it loses its evidential character and becomes worthless.

The physician often comes upon a refractory case. He is puzzled and is obliged to study the patient anew. So the teacher finds that well-nigh every course develops problems. In spite of all he can do, certain individuals fail to respond. Testing then gives place to a study of these individuals.

Modern psychology and physiology have equipped us with instrumentalities for the study of individuals better than we once dreamed we could be equipped. We can study the whole sensory apparatus of the pupil. We can investigate the condition of his neuro-muscular system. We can, if need be, investigate his mental condition and detect disturbing psychoses. We can ascertain his relative brightness or dullness. We can discover the condition of his nutritional processes and sometimes account for languor and apparent indolence on that ground. We know something of what we may expect from the normal circumstances of his period of development. But, perhaps better than all else, the teacher is learning how to put on an analytic frame of mind and view the pupil dispassionately as a reacting organism in process of growth rather than as a youth with a more or less perverted ripened character. And in one very important field—indeed, the most important of all—the teacher is himself the best specialist. I refer to the field of intellectual development as distinguished from the fields of mental and physical development. In a word, the teacher

is best competent to judge the effect of the pupil's earlier intellectual history upon his present capacity to learn. And so with a typical problem—and the real problems number but little more than 5 per cent of the whole number of pupils—we proceed somewhat in the following manner.

First of all, we assure ourselves as well as we can of the sensory and physical soundness of the pupil. There may have been unsuspected eye or ear trouble extending over a period of years, sufficient to account for the origin of the difficulty. The pupil's home habits may have produced a general disturbance of nutrition and elimination of waste products, sufficient to account for poor learning power. And so with many other disturbing factors of a purely physical character. It is essential that physical factors should first be eliminated, for they are in the nature of things fundamental.

That done, the next question is, "Is the child natively stupid to a degree sufficient to account for low learning power?" The teacher can in the majority of cases rule that question out on grounds of lack of corroborative evidence. In some cases the corroborative evidence all points to the conclusion that he is stupid, and then comes the need of several mentality tests. If the consistent result is an I.Q. of 100 or over, the stupidity theory is definitely ruled out. If the I.Q. is less than 100, the presumption tends to be confirmed and, if very much less, say 75, there is ground for further study by a specialist with a view to the determination of possible mental deficiency. In case of consistently determined dullness, there ceases to be profit in the pupil's continuing a course with normal children.

The next consideration in our practice is probably simple laziness. If the evidence points in that direction at all, the trouble is soon identified, for most children are more ready to admit laziness than any other one cause—sometimes overready to do so. Appropriate punitive measures are then indicated with, in most cases, beneficial results. I use the expression "simple laziness" to differentiate from indolence which is the result of nutritional or developmental disturbances. I do not count "simple laziness" as a "real problem."

We then pass to the large field of intellectual causes—large because of the number of cases which we find within its confines in any school which has been conducted on the lesson-learning theory of instruction with a "passing mark" of 70 per cent. Inability to learn in an advanced course is more than likely to be due to poor work in an earlier course in the same subject or to grossly bad study habits, or to the fact that the pupil is a "lesson-getter." There are three items here then.

The pupil cannot learn because he is a confirmed "70-percenter," or "80-percenter," or "gentleman's mark" youth. The genus is too well known to require description. Many high-school and college children are adepts at "just getting through." They have a perverse skill in doing just the right amount of work to avoid being dropped. They cannot learn beyond that point because their stock of ideas is insufficient to establish an apperceptive connection with a new stock. Their cases, so far as the new course is concerned, are precisely as hopeless as those of the mental deficients. These are the intellectual deficients. Our course is to set them back into an elementary course as soon as they are identified. It is explained to them that they will be able to work there and are not able to work here. The idea of punishment is kept out of range. We are endeavoring to get the word "flunk" out of the vocabulary. You don't flunk; you are simply set back a year because you can learn there and cannot learn here. It is very interesting to see the psychological change going over the spirit of the school. One has to orient himself anew when he finds that any day may find him in the next lower division and that he no longer postpones the settlement of his intellectual affairs to a distant semester end or year end. Besides, while there is a certain rakehelly grandeur about the persons of the flunkers when the report cards come out, there is no romance at all in being numbered with the Freshmen next Monday in French or mathematics or physics. These cases are not counted as real problems.

The case of the lesson-getter is pathetic, for he, or more often she, is a dutiful soul who has long followed false gods in sincere devotion. Ordinarily, such people are apt to lose caste somewhat,

for their abilities are frequently not of the sort which respond to the requirements of mastery when understanding and power and appreciation are the objectives. Their cases require a great deal of understanding and intimate personal work; and, because they are by nature dutiful and ambitious, they soon respond.

The third type, those with bad study habits, or no study habits at all, are slowly brought into line, provided the teacher is willing and able to become a real supervisor of study and to renounce the easy task of assigning lessons to be prepared at home where all control of the learning process is lost. Study is a habit, acquired through practice and not through understanding. It is a matter of training, and training can be carried on only under oversight.

There remain the baffling problems, like the cases which puzzle the physician. In some of them, the right specialist could probably throw light if we could find the right specialist who is also a teacher. This is the great unexplored field in which the remedial teacher of the future will work, a field which promises rich returns in scientific achievement and human betterment. I can think of no greater professional satisfaction than that to be found in setting right some of these unhappy "queer sticks" in our high schools and colleges.

Testing and pupil study of the sort we have been describing, of course, go on more or less constantly. To the mind of the alert teacher, who has become thoroughly indoctrinated with the scientific attitude toward teaching, every day's work is full of evidential material bearing on the progress toward mastery, and any day may throw light on one of his pupil problems. The important question is, What is the teacher to do with the results of his tests and the evidence in his possession? The answer is in the third member of our formula, "Teach, test, and teach again." He does teach again, at the points and to the individuals indicated by his tests. He may teach orally, he may assign reading or exercises; but whatever he does, he does with an eye to bringing out the understanding or the power or the appreciation which is his objective.

I am indebted to Miss Mary G. Hamilton of the English department of our laboratory for the following account of the application of the formula to a case of appreciation in literature.

In English 11A, I assigned an oral report on any play of Shakespeare. Two-thirds of the class at the first attempt failed to realize the essential excellencies set up for a perfect book report. The next day these two-thirds repeated their talks, having in the meantime reworked or reconsidered them. Only three students failed this time. On a retrial all of these three did well. I might say that several of the two-thirds on their second attempt quite outstripped any students who were successful at the first attempt.

Two weeks later I had other talks in this class and only one student failed at the first attempt. These latter talks were beyond words accurate, charming, and artistic. Every child was original in his attempt to be adequate.

Miss Hamilton's case which I have cited is typical.

We are, at the time of writing, Christmas holidays, twelve weeks along on this phase of our experiment, and certain gains of power in pupils are clearly evident.

In the first place, in some courses, pupils reach mastery on a given unit, or sub-unit, much earlier than they did. In the beginning, nearly every unit had to be taught over again and sometimes two and three times and even more. On the first round, roughly about one-third of a given division would show the 100 per cent required. This ratio is being reduced, and cases occur in which the entire class show mastery on the first round, except perhaps on a single point and on that substantially the whole class fails, thus revealing an oversight in teaching which the teacher is glad to detect.

Mr. Wilbur L. Beauchamp, of the science department, furnishes me the results quoted below on a presentation in the junior high school, Grades VII and VIII. The topic was combustion, in elementary science. The class was approaching the topic for the first time. Mr. Beauchamp taught, in my presence, covering the whole unit which would be the subject of study for perhaps one to two weeks. His presentation required thirty-five minutes, the pupils taking notes. Attention was constant and high until the very end of the period when it wavered somewhat but not seriously. The following day the pupils began writing up in supervised study in narrative form, their notes being their only help. This narrative was their presentation test, and the situation was such that a pupil could write the complete story only if he could picture to himself a clear understanding of the presentation with its main

points and subsidiary implications as covered by the teacher. I quote Mr. Beauchamp's analysis.

The big ideas which were presented were as follows:

1. Some substances burn and some do not. Those substances which burn are fuels.

2. Every substance has a temperature at which it will "catch fire." This is the burning temperature.

3. Air is necessary for burning. Oxygen is the active part of the air.

4. Burning is the combination of oxygen with the substance burned. A new product is formed by the combination. If an insufficient amount of oxygen is present, smoke is formed.

5. The combination of oxygen with a substance produces heat.

The ideas listed above furnish the basis for the check in the table which is attached.[1] This table was made by first checking the points given in paragraph 1 and then combining them under the five ideas listed in this paragraph.

An analysis of the points enumerated in paragraph 1 indicates that too much detail was included. For example, it is questionable if the classification of materials into elements, compounds, and mixtures is advisable. Some detail and some definitions must be included to make the main ideas clear.

In writing the papers, the instructor gave instructions to reproduce the lecture given by the instructor and to include such experiments as illustrated the main points. Most of the students took two periods to write their discussion.

The first three ideas were covered by the entire class. Most of the students wrote such voluminous papers that there was a noticeable decrease in the number covering the last two points. I am certain that a larger number were familiar with these ideas than the analysis shows, because when questioned concerning their omission they were able to give satisfactory answers. It is a question if this type of paper measures the efficiency of the presentation as well as answers to certain definite questions.

There were sixty-four pupils in three divisions. A summary of the results follows:

Item	No. Understanding
1	64
2	63
3	63
4	54
5	51

Items 4 and 5 were then re-presented. It should not be understood that the technique stops here with this unit. There will now

[1] Lack of space precludes the printing of Mr. Beauchamp's full tabular analysis.

be a week or more in which the class will do a great deal of supervised study, gradually assimilating the whole principle of combustion and its implications in the elementary chemistry of elements, compounds, and mixtures. Finally, there will be either written or oral recitation upon the topic as a whole, each pupil taking the floor for a talk, reversing in some sense the teacher's presentation, or else writing a fuller paper covering the ground.

The effect of this kind of procedure upon the pupil's powers of concentration is marked. It is an achievement for a seventh-grade pupil to listen closely enough for thirty-five minutes to be able thereafter to reproduce in substance the content of the lecture. In supervised study, the pupils gain power to apply themselves over a long period by simply having the experience of doing so.

The question naturally arises at once, What provisions can be made for differences in learning-rate under a procedure which has mastery as its objective?

In the first place, such differences are not nearly so marked as in the case of a lesson-learning procedure. As I have suggested in the preceding article, differences in mentality which reveal themselves as differences in rate of learning are not nearly so important as intellectual differences consequent on different degrees of approach to mastery. If the reader will consult also the tables in my article in the January number of the *School Review*, he will, I think, be impressed by the fact that high mentality by no means corresponds to efficient and rapid learning. We may reasonably conjecture, too, that those obscure differences in individual equipment which we group together under the head of interest have much to do with differences in rate of learning. Be that as it may, if our theory is sound, mastery by all pupils—save the genuine problem cases—should eliminate a large class of marked differences in progress through a given unit. And such appears to be the case at this early stage of our experiment. As training goes on, the rate of learning of the majority of a class seems to be materially nearer together than formerly.

None the less, a few individuals are always conspicuously more rapid learners than the remainder of the class, and a few others are capable of much more and much better work. And there are

usually a comparatively small number, a decreasing number, I think, of laggards. Of course, provision must be made for the unusually capable. Under lesson-learning procedure, these would have been in many cases in the A group and that would be the end of it. To meet the situation, we have devised a plan of excess-credit units. A concrete case will illustrate.

A division in chemistry under Mr. V. C. Lohr was working on the unit hydrogen. A boy who seems to be possessed of a special talent for and special interest in chemical studies completed the unit earlier than the others. He was assigned, or selected under guidance, the unit hydrolization of oils and greases. This unit was worked up with a large degree of independence, though under the guidance of the instructor. In the end he produced a paper on the subject which was a very creditable piece of work. Formerly, he would have received an A grade for doing precisely the same work as the others. Now, he receives unit credit for the work of the class and excess credit for his further and additional work. In the end, he knows his hydrogen as well as the others and knows a great deal more about it. He has also received invaluable training in independent study at high-school level. Another does a good piece of gravimetric work with the sensitive balance.

An excess-credit unit is not necessarily finished at the same time when the rest of the class finishes its fundamental unit. A pupil may continue work on a given excess-credit unit for a month or more.

Of course, it is entirely possible to excuse the more rapid workers, particularly when individuals need more time in other subjects. It is also possible to assign excess work in line ahead into the next course so as to enable a pupil to shorten his high-school career. With unusually mature students the latter course is no doubt often desirable. With the ordinary high-school student, certain factors depending on the different kinds of maturity ought to be taken into consideration.

We may tentatively set up four kinds of maturity—intellectual, mental, physical, and social (sophistication). Now, there seems to be no constant relation between these four types except that between physical and mental maturity, which are perhaps only

different aspects of the same thing. Intellectual maturity, that is, completion of general education, may come at any time within pretty large limits and, of course, may never be reached. Indeed, in the case of the great majority of the race it never is reached. Social maturity, the other element which depends entirely on environmental influences, may also vary within wide limits. The boy who is thrown on his own resources early in life becomes sophisticated much earlier than the sheltered youth of the comfortable home. Judging from observations in the field of industry and the street trades, the present writer thinks that sophistication may take place as early as ten years of age or thereabout. There is undoubtedly variation in the chronological age of mental and physical maturity, but the variation tends to be overestimated, and in the majority of cases individuals seem to reach the period of slow development at about eighteen.

There is no advantage in reaching intellectual maturity prior to the arrival of mental maturity, whenever the latter may come. Accordingly, whatever time is gained before eighteen or thereabout is, *in most cases*, more wisely devoted to broadening intellectual equipment and training than to hastening intellectual maturity. Under the conditions prevailing in our laboratory, with its junior high school and junior college courses, normal completion of the typical high-school curriculum is expected to occur at about sixteen years of age and completion of the junior college at about eighteen. We are therefore not anxious to hurry pupils through the course.

Again, it is not wise to send young people away to the relatively independent life of the college prior to social maturity, the time when the youth has balance-wheel enough to be trusted. Again, young people differ very greatly in this respect and, as we know, some of them never become fully mature. But, on the whole, the prevailing college practice which places sixteen as the minimum age of admission is probably wise and probably founded on actual life-conditions.

Setting up a mastery objective as the standard, one naturally asks, Will you not get a prodigious number of failures? That all depends upon the fidelity with which the technique and the pro-

cedure are lived up to by the teacher. At the end of our first half-semester, we find 1,874 possible ratings in the school. Of these 123 are rated failures, or 6.5 per cent. There may be a different story as the experiment proceeds. But a very considerable proportion of these would not be considered failures on the ordinary working system.

Another point yet to be settled is the degree to which pupils retain mastery. In some cases, notably the language arts, we shall be unable to draw any valid conclusions until long after pupils have left us. Power to read French or translate Latin or to write correct English is not lost at the end of the semester (or year) or course in which that power is gained. In mathematics and the content subjects, the case is different, but there is little reason to expect that retention of matter acquired at mastery level will be less than retention acquired in process of lesson-learning with daily marks.

A final question will bear upon ground covered, and the answer here is both yes and no. If you mean by ground covered the number of principles covered, the answer is that not so much ground is covered to date as in lesson-learning when the assimilative material for a year is the thing fixed and the class is carried through with quantity in this sense as the objective and the individuals are rated in terms of percentages. If you are thinking of principles taught and mastered by every pupil, of course, more ground is covered. If you have in mind quantity of solid reading done, very much more ground is covered. And, finally, the excess-credit pupils learn a materially larger body of principles than is contemplated in the ordinary corresponding course in lesson-learning.

JUNIOR HIGH SCHOOL CURRICULA AND PROGRAMS[1]

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Someone has said that "the crowning merit of the junior high school lies in its curriculum." This thought led to an investigation of the programs of study actually provided by the junior high schools of the country. Comprehensive questionnaires were sent to junior high schools in every state reported by the Bureau of Education as having such schools. One hundred and one questionnaires were returned with data in such form as to permit interpretation, representing conditions in the junior high schools of all sizes and types in thirty-six states.

CURRICULUM ORGANIZATION

In Table I are presented figures showing the forms of curriculum organization in 101 junior high schools. These figures show the following facts:

TABLE I

CURRICULUM ORGANIZATION OF 101 JUNIOR HIGH SCHOOLS

NATURE OF CURRICULUM ORGANIZATION	SCHOOLS HAVING GRADES 7-8-9		SCHOOLS HAVING GRADES 7-8		SCHOOLS OF BOTH TYPES	
	Number	Percentage	Number	Percentage	Number	Percentage
General curriculum—all subjects required	5	7	20	61	25	25
General curriculum, with free electives	29	43	12	36	41	40
Differentiated curricula, with no electives	2	3	1	3	3	3
Differentiated curricula, with curriculum electives	26	38	.....	.....	26	26
Differentiated curricula, with free electives	6	9	.....	.....	6	6
Total	68	100	33	100	101	100

1. Of all junior high schools reporting, 25 per cent are reported to have a single fixed curriculum in which all subjects are required

[1] "Harvard Seminaries in Secondary Education," Project 2021–F2122–7.

and no differentiation is afforded. This is true of 7 per cent of junior high schools of the three-grade type (Grades VII–VIII–IX) and of 61 per cent of junior high schools of the two-grade type (Grades VII–VIII).

2. Of all schools reporting, 75 per cent provide for some form and amount of differentiation: 40 per cent through a general curriculum with free electives, 3 per cent through differentiated curricula with no electives, 26 per cent through differentiated curricula with curriculum electives, and 6 per cent through differentiated curricula with free electives.

3. Of schools of the three-grade type 43 per cent provide for differentiation through a general curriculum with free electives, 3 per cent through differentiated curricula with no electives, 38 per cent through differentiated curricula with curriculum electives, and 9 per cent through differentiated curricula with free electives.

4. Of schools of the two-grade type 36 per cent provide for differentiation through a general curriculum with free electives, and one school provides for differentiation through differentiated curricula with no electives.

5. In junior high schools of the three-grade type the practice is predominantly to have either a general curriculum with free electives or differentiated curricula with curriculum electives.

6. In junior high schools of the two-grade type the practice is predominantly to have either a single fixed curriculum with all subjects required or a general curriculum with free electives.

It is clear that the majority of junior high schools of the two-grade type are failing to meet one of the most fundamental ends of the reorganized system, i.e., to make anything like adequate provision for individual differences through differentiated subject-matter.

It is to be noted that differentiated curricula are provided in one-half of the three-grade junior high schools. Of the thirty-two schools reported to have differentiated curricula with some form of election, thirteen begin the differentiated curricula in the seventh grade, four in the eighth grade, and fifteen in the ninth grade; the last fifteen mentioned have free electives in the seventh

and eighth grades and begin differentiated curricula in the ninth grade. Thus we find a distinct tendency to organize definitely differentiated curricula in junior high schools of the three-grade type, a tendency which is certainly open to severe criticism since it tends to destroy the diagnostic function of the junior high school. In all, fifteen schools of the three-grade type begin differentiated curricula in the seventh grade, a practice which is certainly to be condemned in the severest terms.

THE CURRICULUM AND PROGRAM IN JUNIOR HIGH SCHOOLS OF THE TWO-GRADE TYPE

In Table II are presented figures indicating the nature and distribution of studies in junior high schools of the two-grade type. Many facts appear from these figures.

TABLE II

DISTRIBUTION OF CONSTANTS AND VARIABLES IN THIRTY-THREE JUNIOR HIGH SCHOOLS COMPRISING GRADES SEVEN AND EIGHT

SUBJECTS	CONSTANTS				VARIABLES			
	Grade 7		Grade 8		Grade 7		Grade 8	
	First Half	Second Half	First Half	Second Half	First Half	Second Half	First Half	Second Half
English	33	33	33	33	.....	.....	.....	.....
Spelling	10	10	10	10	.....	.....	.....	.....
Penmanship	10	10	10	10	.....	.....	.....	.....
Literature	9	9	8	8	.....	.....	.....	.....
Arithmetic	28	28	27	27	.....	.....	.....	.....
General mathematics	5	5	3	3	.....	.....	.....	.....
Algebra	.....	.....	2	2	.....	.....	2	2
United States history	28	28	28	27	.....	.....	.....	.....
Civics	5	5	12	16	.....	.....	.....	.....
Political geography	26	26	13	13	.....	.....	.....	.....
Physiology	18	18	9	8	.....	.....	.....	.....
Physical training	12	12	12	12	.....	.....	.....	.....
Music	16	16	15	15	1	1	1	1
Drawing	19	19	16	16	1	1	2	2
General science	4	4	15	17	.....	.....	1	1
Manual training	17	17	20	20	3	3	4	4
Domestic science	21	21	23	23	6	6	9	9
Latin	1	1	2	2	2	2	10	10
French	1	1	2	2	3	3	11	11
Spanish	.....	.....	.....	.....	3	3	9	9
Italian	.....	.....	.....	.....	.....	.....	1	1
Bookkeeping	.....	.....	1	.....	.....	.....	6	6
Typewriting	.....	.....	.....	.....	.....	.....	2	2
Vocations	.....	.....	2	2	.....	.....	.....	.....

1. In the main the subjects required in junior high schools of the two-grade type are much the same as those found in a good elementary school. The most significant studies are civics (about one-half of the cases in the eighth grade), general science (about one-half of the cases in the eighth grade), and possibly increased emphasis on manual training and domestic science.

2. Constants in the seventh grade are as follows: English, 100 per cent; arithmetic, 85 per cent; United States history, 85 per cent; political geography, 79 per cent; physiology, 55 per cent; drawing, 58 per cent; music, 50 per cent; manual training, 51 per cent; domestic science, 64 per cent. Constants in the eighth grade were much the same except for a decrease in political geography and physiology, and an increase in civics and general science.

3. Characteristic junior high school constants such as civics, general science, and introductory mathematics appear in these programs but far less frequently than they should.

4. In junior high schools of the two-grade type variables (elective studies) are more conspicuous for their absence than for their presence. Where found, they are predominantly in one or more foreign languages, those studies constituting 54 per cent of the gross number of variables reported. Foreign languages and manual training or domestic science combined constitute more than three-fourths of the gross number of variables reported.

THE CURRICULUM AND PROGRAM IN JUNIOR HIGH SCHOOLS OF THE THREE-GRADE TYPE

In Table III are represented figures indicating the character and distribution of studies in junior high schools of the three-grade type. These figures illustrate typical conditions as follows:

1. Constants in the majority of schools in the seventh grade are as follows: English, 100 per cent; arithmetic, 64 per cent; United States history, 67 per cent; political geography, 75 per cent; domestic science or manual training, 66 per cent; music, 70 per cent; drawing, 67 per cent; physiology, 50 per cent—much the same program of constants as the ordinary seventh grade in the

elementary school. Noticeable, however, is general mathematics, 36 per cent.

TABLE III

DISTRIBUTION OF CONSTANTS AND VARIABLES IN SIXTY-SEVEN JUNIOR HIGH SCHOOLS COMPRISING GRADES SEVEN, EIGHT, AND NINE

SUBJECTS	CONSTANTS						VARIABLES					
	Grade 7		Grade 8		Grade 9		Grade 7		Grade 8		Grade 9	
	1st Half	2d Half	1st Half	2d Half	1st Half	2d Half	1st Half	2d Half	1st Half	2d Half	1st Half	2d Half
English	67	67	67	67	67	67	....	....	....	....	....	....
Arithmetic	43	43	30	28	3	2	....	....	2	2	9	9
General mathematics	24	24	19	20	11	11	....	....	....	....	1	1
United States history	45	45	49	49	2	1	....	....	1	1	2	2
Political geography	52	48	17	15	2	2	....	....	2	2	1	1
Domestic science	44	48	29	28	8	8	7	7	17	20	26	27
Manual training	45	47	24	24	8	8	8	8	13	16	26	27
Physical training	48	48	47	47	32	29	....	....	....	....	1	1
Music	47	47	31	30	13	13	5	5	10	8	12	12
Drawing	45	42	20	19	5	5	7	7	18	16	18	18
Penmanship	33	33	18	18	2	2	7	7	1	1	1	1
Physiology	18	18	10	9	2	3	....	....	....	....	4	4
General science	10	10	10	10	14	12	....	....	....	....	6	6
Spelling	19	19	16	16	5	5	....	....	....	....	....	....
Sewing	15	15	9	9	2	2	1	1	2	2	5	5
Civics	9	9	9	9	10	12	....	....	....	....	6	8
Literature	6	6	4	4	....	1	....	....	1	1	1	1
Latin	....	....	....	2	2	2	15	15	18	19	34	34
French	....	....	....	....	1	1	16	16	18	18	20	20
Spanish	....	....	....	....	1	1	13	13	19	19	18	18
Bookkeeping	....	....	1	1	....	1	1	1	3	4	4	4
Shop experience	7	7	5	5	....	....	2	2	4	4	4	4
Vocations	....	....	1	2	3	6	....	....	....	....	1	1
Algebra	....	....	8	7	14	13	....	....	2	3	7	7
Mechanical drawing	2	2	1	1	....	....	....	....	2	2	2	2
Ancient history	1	1	1	1	3	3	....	....	1	1	9	9
Stenography	....	....	....	....	....	....	....	....	2	2	5	5
Typewriting	....	....	....	....	....	....	6	6	8	8	7	7
Agriculture	....	....	....	....	....	....	1	1	2	2	3	3
Physical geography	....	....	....	....	2	2	....	....	1	1	2	2

2. Constants in the eighth grade are predominantly: English, 100 per cent; arithmetic, 45 per cent; United States history, 73 per cent; domestic science or manual training, about 40 per cent; music, 46 per cent; general mathematics, 46 per cent.

3. Constants in the ninth grade cannot be said to include any study except English, though the figures for general science, civics, and algebra are worthy of notice as indicating possible tendencies.

4. Even in junior high schools of the three-grade type apparently there is a relative scarcity of variables. For the most part the variables offered are domestic science or manual training, foreign languages, drawing, and music.

5. Of the gross number of variables offered in the seventh grade nearly one-half are in foreign languages, 18 per cent are in domestic science or manual training, 22 per cent are in music, drawing, or penmanship, and the remaining 10 per cent are scattering.

6. Of the gross number of variables offered in the eighth grade 37 per cent are in foreign languages, 20 per cent in domestic science or manual training, 20 per cent in music, drawing, or penmanship, and the remaining 23 per cent are scattering with some slight emphasis on commercial subjects.

7. Of the gross number of variables offered in the ninth grade 31 per cent are in foreign languages, 22 per cent in domestic science or manual training, 13 per cent in music and drawing, and the remaining 33 per cent are scattering, again with some slight emphasis on commercial subjects.

8. Except for domestic science and "manual training," practical-arts subjects are far from common in the junior high schools studied. In most schools elective work is practically limited to domestic science or manual training and the foreign languages, with here and there some provision for commercial studies. Ancient history and algebra are more commonly offered than shop work.

DIFFERENTIATED CURRICULA

In Table IV are presented figures showing the character and distribution of constants and variables in various curricula in junior high schools of the three-grade type providing differentiated curricula, at least to the extent of having different "courses" formally designated by such titles as Academic Course, Commercial Course, Industrial Course, Agricultural Course, etc. In answer to the question: "What differentiated curricula do you offer?" replies were made naming in all twenty-three different curricula, or, rather, giving twenty-three different names to so-called different curricula. However, those courses could easily be grouped under three significant heads and in Table IV only three different groups are distinguished, "Academic," "Classical," and "General" courses, for example, being combined under the one head "Academic Curricula."

TABLE IV

DISTRIBUTION OF REQUIRED AND ELECTIVE STUDIES IN THIRTY-FOUR JUNIOR HIGH SCHOOLS COMPRISING GRADES SEVEN, EIGHT, AND NINE, WHICH HAVE DIFFERENTIATED CURRICULA

SUBJECTS	ACADEMIC CURRICULA						COMMERCIAL CURRICULA						PRACTICAL-ARTS CURRICULA					
	Required			Electives			Required			Electives			Required			Electives		
	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9
English	34	34	34	...	...	...	31	31	31	...	...	...	34	34	34	...	...	...
Arithmetic	12	7	1	...	1	...	12	9	16	5	...	8	12	6	1	...	1	...
General mathematics	22	25	12	...	...	1	19	14	12	...	...	8	22	25	17	...	2	...
United States history	23	30	1	...	...	1	20	27	...	...	...	...	23	34	...	...	...	...
Political geography	28	10	1	...	3	1	28	14	3	...	...	...	28	11	1	...	3	1
Domestic science	26	14	4	...	25	10	24	13	7	...	2	11	19	12	7	...	9	11
Manual training	27	15	4	...	12	10	26	21	8	...	3	11	21	12	9	...	9	10
Physical training	31	31	8	...	1	1	28	28	25	...	1	1	31	31	28	...	1	1
Music	33	27	25	1	1	3	30	27	23	...	...	2	32	21	25	1	1	2
Drawing	32	15	10	1	12	15	28	12	10	...	...	2	31	16	14	1	3	5
Penmanship	21	5	4	...	...	...	23	8	5	...	11	13	21	8	4	...	...	...
Physiology	12	4	1	...	...	1	12	1	1	...	3	...	12	1	1	...	...	...
General science	12	12	7	...	10	20	11	11	11	...	1	6	14	15	18	...	2	14
Civics	4	17	13	...	8	3	4	20	8	...	...	...	...	23	6	...	...	4
Spelling	8	4	...	...	...	1	8	4	1	...	...	...	7	2	...	...	...	1
Latin	2	3	8	10	20	28	...	...	...	1	1	3	...	...	...	1	1	7
French	...	...	...	2	11	21	2	1	...	2	2	12	...	...	...	1	1	3
Spanish	...	...	...	8	19	23	...	...	...	4	4	8	...	...	...	3	6	6
Social study	2	2	...	...	...	...	2	2	...	...	...	...	2	2	...	...	...	...
Practical arts	3	4	...	...	...	1	3	4	...	...	...	2	3	3	2	...	...	1
Literature	8	2	...	...	1	...	5	2	1	...	...	...	6	3	...	...	...	...
Vocations	...	9	14	...	...	...	...	9	4	...	...	...	1	10	4	...	...	...
Algebra	...	1	17	...	2	2	...	...	3	...	1	3	...	1	15	...	2	5
Mechanical drawing	3	5	...	1	1	4	3	13	...	...	...	...	5	16	15	...	...	...
Ancient history	...	...	4	...	...	19	...	...	...	...	...	1	...	...	...	...	...	5
Typewriting	...	1	1	...	1	1	1	2	7	2	1	4	...	...	...	1	1	2
Bookkeeping	...	...	...	...	...	...	...	3	9	...	8	9	...	...	4	...	...	1
Business practices	...	1	1	...	...	...	...	2	1	...	...	3	...	...	...	...	...	...
Biology	...	...	1	...	...	1	...	...	...	...	...	2	...	...	...	...	...	1
Agriculture	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...
Physics	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Economics	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...

The figures presented in this table indicate the following facts:

1. Few significant differences are found between the constants of the three curricula. The most significant apparently are: more arithmetic for pupils in the eighth and ninth grades of the commercial curricula and less general mathematics in the eighth grade of those curricula; more general science in the practical-arts curricula; less algebra in the ninth grade of the commercial curricula; more mechanical drawing in the eighth grade of the commercial and practical-arts curricula, and more mechanical drawing in the ninth grade of the practical-arts curricula.

2. In variables the only significant differences found are: the large amount of foreign language in the academic curricula; the large amount of domestic science and manual training in the aca-

demic curricula; the large amount of drawing in the academic curricula; penmanship in the commercial curricula; bookkeeping in the commercial curricula.

3. From the figures given and from other data not readily adapted for presentation in full it appears clear that the assumed differentiation of curricula exists more in name than in practice.

SUMMARY AND CONCLUSIONS

1. A comparison of the two-grade junior high school with the three-grade junior high school shows that the latter is better in almost every respect. The two-grade junior high school seldom affords a form of education noticeably different from the better class of older elementary schools, and provision for individual differences is very unsatisfactory.

2. The curriculum organization of the two-grade junior high school is predominantly a single curriculum without electives, 61 per cent of the thirty-three studied having that organization, while 36 per cent only provide for a general curriculum with free electives, and one school only provides for differentation through differentiated curricula without electives.

3. The three-grade junior high school tends to have either a general curriculum with free electives (43 per cent of all studied) or differentiated curricula with curriculum electives (38 per cent of those studied).

4. A dangerous tendency of the three-grade junior high school is toward the premature organization of differentiated curricula, 50 per cent providing for such differentiated curricula somewhere in the junior high school and 22 per cent beginning such differentiated curricula as early as the seventh grade.

5. The most common form of election in junior high schools both of the two-grade type and of the three-grade type is the election of a foreign language. The only other common elections are domestic science or manual training, music, and drawing.

6. Such studies as civics, general science, and introductory mathematics are very far from occupying the places which they should occupy in the junior high school.

7. Formally nominated curricula differ more in name than in character.

SOME SILENT-READING LESSONS IN JUNIOR HIGH SCHOOL ENGLISH

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For several years experimental work has been carried on in the University of Chicago laboratory schools in devising a technique for effectively teaching silent reading. The lessons described in this article illustrate one line of attack which was pursued in the Junior High School during the year 1919–20.

Sample seventh-grade lessons. Practice in reading material from community life.—These lessons were conducted with a seventh-grade class in which the study of community life was correlated with the study of English. The content of the course consisted of civic material, while the methods used included special attention to training in reading and in oral and written expression. The experiment included two periods of intensive work on assimilative reading; the first, a period of about nine weeks in November, December, and January; the second, a period of about six weeks in April and May. During these two periods, two lessons a week were devoted to teaching the principles of effective silent reading and to practice in applying them. In general, the instruction followed the lines suggested by R. L. Lyman in his article on "The Teaching of Assimilative Reading in the Junior High School."[1]

Three types of reading matter: text, supplementary, and recreational.—The material read by the pupils included three distinct types, namely, (1) a textbook, (2) supplementary reading closely related to the text, and (3) recreational reading of stories related to the topic in hand. For example, on the topic, "The School," the *textbook* took up such subtopics as "How the American School Developed," "The Money Value of an Education," "How to Get the Most Out of School." The *supplementary* reading included references to such articles as *Community Leaflet A 11*, "Education

[1] *School Review*, XXVIII (October, 1920), 600–610.

as Encouraged by Industry," and *Community Leaflet A 27*, "Concentration of Social Institutions." The *recreational* reading included such stories as *Tom Brown's School Days*, *The Hoosier School Master*, *Nicholas Nickleby*, *The Hoosier School Boy*, Myra Kelly's *Little Citizens*, Piper, *The Boy on the Prairie*, William's *The Adventures of a Freshman*, etc.

Outstanding lessons.—A few of the lessons in silent reading worked out experimentally with these pupils were significant in the reading experience of the children, as evidenced by their references to them and by their clear memory of them. One of the lessons in the experimental series was planned to acquaint the pupils with their rate of silent reading.[1] In it the children led the way in motivating their whole reading problem in a manner quite unforeseen by either teacher or pupils at the beginning of the lesson.

Arousing a curiosity about pupils' rates of reading.—During the first lesson the curiosity of the children about their speed of silent reading was aroused by such questions as, "Have you ever had a silent-reading test?" "Do you know how fast you read, or whether you read as fast as you ought to in your grade?" "Would you like to know?" Of course the last answer was affirmative, and an informal timed test for speed and comprehension was given on the spot. At the close of the test, individual scores (number of words read per minute) were placed on the board arranged in order beginning with the highest. The class was amazed to see that the scores ranged from 405 to 141 words per minute. They immediately wanted to know how fast their reading should be, but discussion of this question had to be postponed until the next lesson. They were dismissed with the promise that their question would be answered the following day.

Discovering how to practice most advantageously.—The class came eagerly to English the next day, the question again on their lips, "How fast ought we to read?" I told them the standard rate for their grade, 280 words per minute, and the median for their own class. One of those who fell below the median asked me to give

[1] For the entire series of silent-reading objectives see *School Review*, XXVIII (October, 1920), 605–6.

him another test that day. Protests were at once forthcoming from three: Pupil 1: "No, we ought to practice a while first." Pupil 2: "I think we ought to discuss why we are slow and how we can speed up." Pupil 3: "There's no use talking about how —just read. All we need is practice."

At this point, I asked, "Is that true of games, that you just need to practice, no matter how?" A negative answer from Pupil 3 brought the question, "Why not?" to which he answered, "You have to practice the right way to get results." To this the class agreed. "What do you mean by the right way?" I asked. The class discussed this question for several minutes in relation to games, no reference being made to reading. When no more suggestions were forthcoming from the class, I suggested that we sum up the points that had been brought out in our discussion. The summary which follows is given in the wording suggested by the class, even to the sounding title. I have enclosed in parentheses the concrete cases on which they based their generalizations, and have indicated which pupil made the contribution.

ADVANTAGEOUS WAYS OF PRACTICE

1. *Practice something a little hard for you.* (Don't always practice batting with an easy pitcher.) Pupil 10.

2. *Practice according to the rules of the game.* (Don't hold the ball in practice if it is against the rules to hold it in the game.) Pupil 2.

3. *Practice with your mind alert.* (Be ready for your opponent.) Pupil 1.

4. *Practice a variety of exercises.* (In basket-ball, don't practice throwing baskets all the time, but also practice passing, long pass, dribbling, etc.) Pupil 2.

After these rules had been formulated, I asked, "Do you think these principles of right practice are true only of games, or would they hold true in general?" The class was of the opinion that they would be true in general. "In reading?" I asked. "Yes," came the answer, "if we know the rules." Here was my opportunity; each of the principles I planned to teach was one of the rules. I had only to present it as such and show why it was effective in increasing speed to assure its ready acceptance. I shall illustrate how this was done by describing the lesson which introduced the pupils to the practice of discovering the "signpost" paragraph in a chapter or section of a chapter.

Introducing the "signpost" paragraph.—The paragraph that initiated this lesson is from the textbook on *Community Life*,[1] and reads as follows:

> There are many different answers to these questions. (What should modern education be? What are the needs of today?) There are many people who say that the chief purpose of education should be to prepare boys and girls to support themselves; others insist that culture should be the chief goal; and a large number declare that education should be primarily for the promotion of social efficiency.

I recalled to the children the facts we had learned in a previous lesson, that the Spartans, the Indians, and the Puritans had chosen a kind of education for their youth which would prepare them for their later life, and that they had succeeded largely because they were united in opinion. I then asked them to read the first two paragraphs of the section and see if, in the author's judgment, we are united in our opinion today. They found, of course, that there are at least three different opinions. After these had been stated, I asked them what they expected the author to do in the rest of the section. They answered, "He will probably tell about each of these aims."

We then compared the purpose of this paragraph to that of a signpost, pointing the way of our journey with the author through his ideas. Next we pointed out that following the direction on a signpost brings the traveler to some destination, and I asked what was probably the destination we would reach if we followed the author's signpost. When I suggested that the destination of a *discussion* is generally a *conclusion*, or a *decision*, they saw that in this case it would be a decision as to which is the best aim of education. At this point I said, "I'll give you two minutes to find out which the author thinks is best. Where will you look?" "In the first and last sentences of the paragraphs," they answered. Inside of the two minutes they had discovered his preference for the third aim.

The next step was to see why the author expressed a preference and what were the faults of the other two aims. They pointed out the sentences which gave this information and found that social efficiency included both self-support and culture, and training

[1] Howard C. Hill, *Community Life*. Textbook in mimeographed form.

in citizenship besides. With these facts in mind, the class was next asked to represent this signpost paragraph on the board. After a little thought they decided on a signpost with three arms, all pointing along the same road, the first arm bearing the legend "Self-support 3 miles"; the second, "Culture 5 miles"; and the third, "Social Efficiency 10 miles." The distances indicate both the order of the three topics in the chapter and the fact that the third is larger than the other two.

The striking points of the lesson were (1) the discovery by the pupils that they need read no farther than the second paragraph to know the main points of the discussion, (2) the realization that they could find quickly the conclusion drawn by the author, as the destination of the thought, and (3) the diagrammatic representation of these facts by the means of the signposts.

Grouping pupils according to reading ability and differentiating instruction.—With these concrete lessons in mind to typify the general spirit of the class work carried through other lessons in the complete series, we may note certain more general features of the experiments, namely, (1) grouping pupils of the class according to their ability in silent reading and (2) differentiating the practice exercises for the groups.

Superior, mediocre, and poor groups based on tests.—After giving one of the standard reading tests to the pupils, the results were used to divide the class into groups of superior, mediocre, and poor readers. No publicity was given to the grouping, and various devices were used to keep pupils unaware of the fact that their instruction was being largely individualized.

Types of poor readers.—Descriptions of certain of the poor readers will indicate some of the problems involved in overcoming the special deficiencies of such readers. The following are typical cases:

Lazy, hazy, purposeless readers.—Pupils 9 and 11 were habitually lazy thinkers; never attacked a piece of reading purposefully or with vigor; never gained more than a few hazy ideas from a ten-minute reading assignment and were satisfied with that. Pupil 11 had a limited reading vocabulary and no initiative in attacking new words, or in getting meaning from context.

Conscientious, intelligent, plodding, word-by-word readers.—Pupil 10 was of a different type; all his reactions, physical and mental, were slow but positive and intelligent. His reading vocabulary was poor, and his pertinacious habit of never leaving a word until he had grasped its meaning and pronounced it slowed up his silent reading and showed a distorted sense of values. He was a thorough plodder who needed to learn not to be so thorough about details as to miss the main idea.

Timid, nervous, uncertain reader.—Pupil 12, very timid and nervous, did not work well under pressure. He felt his lack of reading skill and distrusted his grasp of material read. He needed more than anything else to have some standard by which to measure his own accomplishment that he might know, after he had done a piece of reading, whether he had done it successfully.

Docile, undiscriminating memorizer.—Pupil 14 was a girl of no great ability, but easily stimulated to effort and very teachable. Habitually, she read rapidly unless expected to reproduce or answer questions; then she pored painstakingly over the material until she had undiscriminatingly memorized it. But she willingly adopted new methods and faithfully used them. I attributed most of her progress to docility in following directions.

Lack of standards and of sense of relative values.—For one reason or another, all these pupils had failed to acquire habits of effective silent reading. One difficulty they had in common, and I believe in common with most poor readers: none of them had any standard for judging the effectiveness of his reading nor any clear sense of relative values. Pupils 9, 11, 14, and 13 were as well satisfied to remember a few striking details as to have mastered the central idea of a selection, and the four who had difficulties with words would spend an undue amount of time on a new or difficult word whether it was vital to an understanding of the content or not.

Differentiated practice for superior, mediocre, and poor readers.—The manner in which we endeavored to overcome these special defects of poor readers, and at the same time provide the special practice needed by mediocre and superior readers, is suggested in the following description of a series of six lessons that were intended to give the pupils special practice in *selecting* the central

ideas or main points in their reading. This was one of the several principles or rules of effective reading which we wanted the pupils clearly to understand and skilfully to apply. In the description, the superior, mediocre, and slow groups are designated by the letters A, B, and C respectively.

Six practice lessons in finding central ideas.—These six lessons were consecutive lessons in the textbook, and in application of the reading principle, but did not occur on consecutive days. Lessons one and two were given one week, lessons three and four the following week, and lessons five and six the third week. The intervening days were occupied with oral and written composition and other phases of English work.

The topic was "The School," the third topic in the Community Life courses. The textbook divides the chapter into six sections, namely, (1) "How We Learn," about 8 pages. (2) "How the American School Developed," 4 pages. (3) "How the Public Schools Are Controlled and Supported," 6 pages. (4) "What Education Should Be," 6 pages. (5) "The Money Value of an Education," 3 pages. (6) "How to Get the Most Out of School," 8 pages. The six lesson periods were spent as follows:

First day: Presentation to whole class of principle of finding central ideas. Application and practice in finding central ideas in Section 1 of the text.

Second day: First 30 minutes C group reviewed presentation given day before and reviewed application to section 1 of the text. B group read section 2, and A group sections 2 and 3, and both prepared to report to C group the important facts of these sections. Last 20 minutes A and B groups reported to the class, which asked questions and discussed points.

Third day: First 30 minutes C group read section 2 of the text, marking in the margin sentences which state central ideas and finding points B group would probably cover in the quiz which they were devising. B group was assigned the task of preparing a quiz for the class on this section. Their questions had to bring out important points and require only brief answers. The A group was directed to do general library reading as soon as they felt prepared for the quiz. Last 20 minutes, wrote quiz and discussed answers.

Fourth day: All groups read section 4 silently, C group marking central ideas. Teacher passed about among C group, observing sentences marked, helping those who were making mistakes, answering puzzling questions, and in general, giving individual instruction to those who needed it. The A group, when they finished reading, were instructed to meet in the rear of the room, decide upon the main topics and the subtopics of the section, and delegate one of their number to put the outline on the board to guide the class discussion. When prepared to discuss the text assignment, B group was allowed to do library reading.

When all groups were ready, the entire class took part in the discussion, following the outline.

Fifth day: All groups read section 5 silently, C group marking central ideas and comparing points with author's summary in last paragraph of the section. The A and B groups in addition prepared to discuss certain problems and questions from the list at the end of the chapter; for example, "Was Lincoln an educated man? Give reasons for your answer." "What social dangers in the home are corrected by the school?" The last part of the period was spent in discussing the section and the assigned questions.

Sixth day: All read section 6, first four pages, A and B groups independently, C group under supervision. B group also read last four pages and prepared to tell the main facts to the rest of the class. The A group prepared to read aloud to the class some poem or incident related to the topic, as for example, "In School Days" by Whittier, or a passage from "Hiawatha's Childhood" by Longfellow. Some of these were chosen by the children; some assigned by the teacher.

Additional supplementary activities for capable groups.—Other supplementary activities for the A and B groups which I have used are the following: (1) Summarizing for class discussion, e.g., a summary of likenesses and differences of a primitive and a frontier community put on the board by four members of the A group formed an excellent basis for discussion when the C group had finished reading. (2) Preparation of a debate on a related question, e.g., "*Resolved*, That the average home of today is better than the average home one hundred years ago." (3) Preparation of a

dramatization of a story or poem related to the topic, e.g., "A Knight's Toast" (to his mother) by Scott. Other suitable activities suggest themselves in the course of the work.

Much practice needed on each principle. Variety needed for interest.—Much practice is necessary to make each of the principles of silent reading function habitually in the reading of pupils in the C group. Two or three lessons are not enough. One boy, Pupil 10, finally formed the habit of looking for and marking the sentences which state the central ideas, after perhaps twenty lessons in which he had used the principle. Extended practice is likely to become tedious unless various devices are used to arouse interest. A few of those I have found most successful are the following: (1) Marking central ideas as the selection is given a rapid silent reading, then comparing results with other members of the group. (2) Making an outline with central ideas as Roman numerals. (3) Guessing from the title what the central ideas will be, and verifying or correcting by reading. For example, from the title "Dangers to the Family," the class guessed that the central ideas would be statements of different dangers and guessed what several of them were. Their reading, then, verified, supplemented, and corrected these guesses. (4) Marking sentences in first reading, then comparing with points of the author's summary.

Reinforced by correlating with principles of composition.—In order to reinforce these principles, it is helpful to emphasize them in the composition work at the time they are taught with reading. In connection with finding central ideas, I taught the use of the topic sentence, the "signpost" paragraph, and the summarizing paragraph. When teaching how central ideas are supported, I taught methods of paragraph development in the composition work, and use of subtopics in an outline. The children see that these rhetorical requirements are not mere whims of the teacher, but devices useful for the reader or listener, and they enjoy experimenting with them in their themes and talks. After a well organized talk has been given by one of the group, the children like to reproduce the speaker's outline, or to recall his topic sentences, or his "signpost" paragraph. So, through frequent use, the principles are kept in mind. What is more, there is no need of laying

aside the principle that has been learned in order to take up a new one. On the contrary, each forms a basis for the addition of the succeeding one. A child may first learn to read with a question in mind, then he may look for the key sentences in the reading which answer his question, then for the details which build up these ideas.

Results: Notable improvement by poor readers.—In my judgment, the reading power of the weaker pupils was markedly improved by their practice during the year. At the end they attacked a reading assignment with a spirit of concentration quite lacking early in the year, and had a considerable ability in selecting essential points of a passage. After the practice, instead of a few hazy ideas, Pupil 9 generally had an assured grasp of the important points of materials he had read. In fact, in one assignment, he organized his outside reading for three days so well that he was able to assign topics for reports to all of his companions of the B group.

Pupil 15 no longer resorted to memorizing assignments and had quite lost the air of strain and uncertainty she wore at first.

Pupil 12 lost much of his timidity in discussing his reading. When alone with the teacher and the class he showed increasing confidence.

Pupil 10, undoubtedly the slowest pupil in the class, though not the least intelligent, went through a three-page selection after he had a chance to read it silently once, and told the central ideas without an error and without hesitation.

Pupils 6, 11, and 13, in my judgment, gained least in the course. They still lack a sense of relative values, and their ideas of a passage read are apt to be somewhat hazy. Possibly this lack of improvement is due partly to lack of general mental ability since the Binet-Simon Intelligence Test showed that with one exception these pupils ranked lower in intelligence than any other in the group.

THE SCHEDULE OF RECITATIONS

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Of all the routine tasks that fall to the lot of the high-school administrator the making of the schedule of recitations is at once one of the most important and the most difficult. Its importance rests upon the fact that the smooth running of the intricate machinery of the school, from the opening morning to the last day of the year, depends largely upon the skill with which the schedule of recitations has been made. Its difficulty results from the many restricting elements that must be reconciled with each other, among which may be mentioned the wide range of studies that may be elected by the pupils, the number of rooms available for recitations and study purposes, the laboratory and shop facilities, the number of teachers and their special fitness for certain classes. Besides these, there are many minor considerations, attention to which is essential to the finest adjustment of the schedule.

The making of the schedule for a small school is no less important than for a large one; nor is it less difficult except in the amount of labor involved in securing the elections and making the assignments of pupils. The difficulty of avoiding conflicts between classes is even greater in the small school in which there are few, if any, duplicate sections in the subjects offered.

As for all other details of administration, the principal is responsible for the schedule. He may be fortunate enough to have an assistant principal or some teacher to whom he may delegate the task with confidence that it will be well done; but in most schools the principal himself must handle the problem. Good organization will reduce to a minimum the actual labor which he will have to perform. The principal who spends his summer vacation agonizing over the schedule for the next year is usually paying the penalty of his own lack of foresight and administrative skill. In the preparation of the data on which the schedule is based pupils and

teachers may render much valuable assistance. The final organization of the schedule, however, is a highly technical task which can be properly done only by an expert who will become more skilful from year to year.

Once made, a good schedule can be continued from year to year with only such changes as experience suggests or new developments demand. A folder should be kept in which during the year are placed memoranda as incidents arise which suggest difficulties to be avoided for the next year. Memory cannot be trusted to recall these in the midst of the intricate process of schedule-making.

It is not unusual for a school to begin the year in absolute confusion: classes are without teachers, sections are overcrowded, large numbers of pupils are unassigned. This condition sometimes continues for days. The result is not merely a loss of time at the opening of the year, but there is throughout the school an impression of ineffectiveness which is not at once overcome when a working schedule is achieved. It is possible to have the schedule in complete operation at the first period of the new year without the necessity of the addition or change of a single class. The effect upon both pupils and teachers of this business-like opening is most important. An investigation of the procedure of seventeen city and suburban schools in the vicinity of Chicago showed that seven schools required not more than two changes in schedule after the opening of the year, while one required no change at all. At the other extreme one school found it necessary to make twenty-nine changes. It should be the aim of the principal when his school assembles for the new semester to have each pupil with his schedule in his hand, each teacher with his class lists on his desk, and all pupils assigned to rooms for recitation and study in sections of suitable size.

To secure this result careful preparation is necessary. This should be begun not later than six weeks before the close of the previous semester. The first step is to secure from each pupil a statement of the studies which he wishes to take during the next semester. The method will vary according to the form of organization employed in the school. Many schools assign groups of pupils to teachers in charge of session rooms; others have advisory groups

for which advisers are responsible. At Grand Rapids[1] these advisers serve as administrative officers, in charge of groups of two hundred pupils each. In some smaller schools, the principal attends to this preliminary himself, feeling that this opportunity for intimate contact and personal guidance justifies the use of the time required. Whoever is assigned to this step must be familiar with the details of the school's offerings and must be able to give sympathetic and intelligent advice to pupils, based on their interests and capacities and their several needs. Printed or mimeographed information should be placed in the hands of the pupils as a basis for their selection of courses for the coming semester. In many schools the approval of parents is secured before the pupil's elections are accepted. Blank forms for this purpose should contain a list of the studies taken at the time and those desired for the next semester. These should include the designations of courses employed in the school so that no additional data will be necessary for the proper class assignment in each subject.

When these blanks have been filled out for all pupils in the school, the information should be tabulated so as to show the number of pupils who have elected each subject. This tabulation may best be made for each group by the teacher or adviser in charge. The totals are then placed in the hands of the committee who are to make the schedule. The original blanks are held by the session-room teacher or adviser, for later revisions will be necessary because of failure of some pupils to pass their courses. If the individual schedules of pupils are to be made out by the advisers, they will also need these blanks for that purpose.

Provision has thus far been made for the pupils in the school during the previous semester. It is equally important to secure definite data regarding those who are to enter the school for the first time. This can best be done through the grade teachers in the elementary schools. The principal or some other representative of the high school should go to each elementary school and talk to the class about to be transferred to the high school. The same detailed information regarding the offerings of the first year should

[1] Alice M. James, "Scientific Program-Making in the Central High School of Grand Rapids, Michigan," *School Review*, XXV (September, 1917), 504-11.

be distributed; blanks should be filled out and handled by the elementary teachers in the same manner as described above.

In some schools, provision is made for a visit to the high school by the elementary-school pupils who are nearing promotion. This visit affords opportunity for giving the necessary information and also for removing some of the forebodings with which, during the summer, these younger pupils may contemplate their new experiences in the high school. In this connection the following statement from Principal R. G. Heitman of the Sioux City, Iowa, High School regarding the observance of "Big Brother and Big Sister Day" is interesting:

> Near the close of each semester, all pupils of the senior eighth grade of the Sioux City public schools visit the high school for half a day. This is known as Big Brother and Big Sister Day. As a rule, Seniors act as ushers for these Freshmen to be, although sometimes acquaintances from the same school or neighborhood conduct them. The newcomers are taken to visit the various classes of their guides and shown where and how to get their lunch. During his vacant period, the usher has the privilege of showing the visitors around the building.
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> The scheme has done much to take away the newness for the entering class. They learn the location of rooms and get a general acquaintance with high-school régime. In many cases it has also led to a kind of guardianship, for the Senior who has "big brothered" him feels a kindly interest toward him after he enters and helps him through many difficulties. To some extent at least this plan may be responsible for the fact that such a high percentage of those promoted enter the high school.

From the separate totals handed in by session-room teachers or advisers covering the elections of pupils already members of the school and of those to be promoted from the elementary schools, the principal, or preferably the schedule committee, next draws up a tally sheet, showing the number of pupils electing each course. From this tally sheet the numbers of divisions in each course can be determined. At the opening of the next school year there will be found variations from the figures of the tally sheet due to the failure of some pupils to return to school and to the influx of new pupils from sources that could not be definitely determined before the making of the schedule. A fairly accurate prediction, however, may be made regarding these items based on previous experience in a given school, so that there should be need of few or no changes

in the schedule as it is finally made. It is, of course, important that no pupils be allowed to change their elections except for valid reasons.

So far the preliminary work should have been accomplished by a schedule committee, which need not be large, assisted by a considerable number of session-room teachers or advisers. At this point comes the making of the schedule, a highly technical task, which can be best done by one person who is familiar with all the varying factors which enter into the problem. Among the determining factors the following may be mentioned as important:

1. *Number of classrooms available.*—In most schools the number of classrooms is so limited as to require approximately the same number of classes at each period of the day.

2. *Available study-room space.*—Some schools have one or more large study halls which will accommodate the pupils not assigned to recitations. In others, classrooms only are available for this purpose, and many pupils may of necessity be assigned to unoccupied seats in rooms in which classes are reciting. It is important that pupils should not be placed during their study periods in large assembly halls which are not furnished with suitable desks and in which the lighting is not adequate for study.

3. *Number of teachers and their adaptability to the classes to which they are assigned.*—Careful discrimination is necessary in the assignment of teachers in order to secure the best results in instruction. It is sometimes important to exercise this discrimination in the choice of teachers for individual pupils.

4. *Length and number of periods.*—There is a marked tendency to lengthen the recitation period in order to increase the effectiveness of instruction and to provide for supervised study. This is to be preferred to the plan of providing for supervised study in special periods at the end of the school day. In some schools double periods are provided for this purpose in the work of the earlier years. This lengthening of the period is often accompanied by a corresponding increase in the school day; in some cases it results in a reduction in the total number of periods.

5. *Laboratory and shop periods.*—If double laboratory periods are used, as is the case in most schools, they present considerable

difficulty of adjustment. The increasing practice of single laboratory periods, which is based on other considerations than those related to schedule-making, simplifies this troublesome factor.

6. *Classes meeting fewer than five times a week.*—Various subjects, such as music, physical training, and military drill, usually require but one or two periods a week, while some others of the more formal subjects are given less than five periods in the schedule. If these cannot be so arranged as to come at the same period or alternate with laboratory periods, serious difficulties will result in providing for the widely varying study-room requirements on different days.

7. *Subjects with only one section.*—These will be found in considerable number and it will be necessary to employ the utmost care in placing these so that conflicts in pupils' schedules will not occur. This is likely to prove the most baffling single factor in making the schedule, and it sometimes becomes impossible to provide for some of the irregular schedules of individual pupils.

8. *The factor of fatigue.*—While we have very little scientific knowledge regarding fatigue, it is generally assumed that more effective school work can be done at some periods of the day than at others. Some provision may be made for this in the placing of subjects in the schedule. In the making of schedules for individual pupils alternation of study and recitations can usually be arranged. Some schools have provision for placing each subject at a different period each day, thus equalizing any effect of fatigue between the different subjects. The DeWitt Clinton High School, one of the largest high schools in New York City, has this plan, as does also the English High School of Boston,[1] with an enrolment of over 2,000 pupils.

9. *Assembly period.*—In some schools the weekly assembly takes the place of one of the regular periods, rotating through the number of periods in order. An objection to this plan arises from the fact that certain times in the day are better adapted than others to a thoroughly successful assembly. This difficulty may be obviated by holding the assembly at the same hour each day on which it occurs and moving the remaining periods forward or backward to secure the necessary rotation. In some schools the

[1] See the article by John A. Marsh, "Making a High-School Program," *Educational Administration and Supervision*, VI, 202-14.

assembly is held at the same hour each week, the periods of the day being equally shortened to provide the necessary time. In any case, there will be some readjustment with accompanying loss which is justified by the importance of the well-conducted assembly.

With these determining factors in mind and the tally sheet in hand, the schedule-maker is ready for his task. There are in general two methods of making a schedule, the *block* method and the *mosaic* method. The former may be described as the more scientific and therefore more desirable, particularly in a large school; the latter is more commonly used.

The block method consists in arranging all the recitation sections in non-conflicting groups. In practice, it will be found that from five to eight such blocks will be required. These blocks should contain approximately the same number of recitation sections each. The article by Marsh referred to above describes a schedule of five blocks containing from twenty-five to twenty-eight sections each. For another similar method employing seven blocks see the article by Richardson[1] of the Roxburg High School, Boston. One familiar with school administration will readily see that certain subjects will ordinarily present no chance of conflict, e.g., the successive years of foreign-language classes. The definite requirement in many schools that only one foreign language may be begun at the same time gives another principle for block-making. Different sections of the same subject, e.g., English I, will naturally be placed in different blocks, unless, as is now coming to be the practice in some schools, it is desired to place two or more sections of one subject at the same period so that reassignments of pupils may be made on the basis of ability. The placing of the one-section subjects so as to avoid conflicts is a delicate task in making up the blocks.

With the blocks arranged there follows the assignment to rooms and teachers. If the blocks are made up of a uniform number of classes, based on the number of rooms available, the assignment of rooms is not difficult. The same may be said regarding teachers except that it is not always easy to make the most desirable assignments on the basis of the special adaptability of individual teachers

[1] M. W. Richardson, "Making a High-School Program," *School Review*, XVII (September, 1909), 449-66.

to certain classes. For the actual task it is well to make a layout of teachers and rooms on a blackboard or large sheet of paper and fill in the blank spaces from the blocks as planned. It may be advisable for this to be done by the heads of departments. It is, at least, wise to submit to each department head the finished schedule of his department for approval. Experience, however, may cause one to hesitate to offer opportunity for suggestions, for this procedure is sure to be followed by an overwhelming number of requests for changes, most of which are impossible in view of the schedule as a whole.

The mosaic method, as the term implies, consists in attempting to place the various sections in the schedule in such a way as to avoid conflicts and to meet the conditions which determine a working schedule in a given school. It is an agonizing job in which some acquire considerable skill. In such cases schedule-makers develop in a somewhat undefined way the principle that distinguishes the block method. I have heard a principal of seven hundred pupils describe this method by which he placed on a blank diagram of his proposed schedule squares of pasteboard on which the designations of the different sections were written. These squares were of different colors, one for each year. By shifting these about he finally hit upon a working combination. It is worth noting that he said that he spent the entire summer vacation, an average of two hours daily, in working out his schedule and was assisted in the process by his wife.

With the schedule of recitations completed, there remains the final task of making the individual schedules of the pupils. If each step has been accurately taken up to this point, this becomes largely a matter of good organization. The method varies from that usually employed in which these are made out by the session-room teachers or by committees of teachers to that in which the pupils make out their own schedules. The former method is better adapted to large schools and is probably more efficient in any school, although the latter is frequently used in schools of considerable size. In the Central High School,[1] St. Paul, those pupils who pass

[1] A. G. Meier, "Semester Reorganization and Program-Making in the Central High School of St. Paul, Minnesota," *School Review*, XXVI (April, 1918), 249-58.

in all their work are allowed to make their own schedules. It is maintained that this plan secures valuable training in initiative and that it furnishes incentive to good work. About two-thirds of the labor involved in making the schedule in this school is done by pupils who thus get an insight into this intricate problem that is thought to be of considerable educational value. In the Central High School of Grand Rapids, however, the plan of having the pupils make out their own schedules was found after several years' experience to be wasteful and was abandoned with a resulting improvement in efficiency.

In order to secure the necessary revision of elections of pupils who fail in certain courses it is highly desirable that reports of failures be in the hands of the session-room teachers or advisers before the last day of the term in order that revisions may be made in consultation with the pupils. This may seem to present insuperable difficulties, but this is not the case. In the St. Paul school final grades are in the hands of the enrolment teachers on Wednesday morning of the last week and all changes are made on that day. On Thursday and Friday of that week the pupils do not report and teachers are thus free to complete all the details of the schedule for the coming term. If no provision is made for individual consultation regarding revision of schedules, these changes must be made arbitrarily or allowed to go over to the opening of the next term. In the latter case there will result much confusion which it is very desirable to prevent.

The most economical method of making the individual schedules is to place this task in the hands of the advisers of each group. This ordinarily gives to one teacher the making of about thirty schedules, which he can accomplish in a maximum time of two hours. In order to avoid the difficulty, which might easily result, of having some sections overcrowded, as these teachers would be working independently, the pupils should be distributed equally among the different sections in each subject in which there is more than one section. When they have completed the schedules of their groups, tally sheets are made showing the number of pupils assigned to each subject and section, and these with the completed schedules are turned over to the schedule committee. A final tally

sheet, made up of these separate tally sheets, shows the total number of pupils assigned to each section on the schedule.

Of course, there will be found some pupils whose schedules present peculiar and sometimes insuperable difficulties. These will have to be assigned to the principal or to a designated assistant. In some cases it will be necessary to change the elections of the pupils; in others it may appear that groups of subjects absolutely essential to the pupils present conflicts. As a last resort it may be necessary to attempt changes of the entire schedule. At this point such changes are extremely difficult, their necessity usually being due to some oversight at an earlier point in the layout of the schedule. If the situation involves any considerable number of pupils, the easiest way out of the dilemma is usually to schedule an additional section.

In some well-organized schools, the making of individual schedules is accomplished by committees composed of one representative from each department and in addition a reader and a checker. With a layout of the entire schedule on a blackboard or chart, the reader from the individual election cards reads each subject, the teacher from the appropriate department makes the assignment to a given section, which is recorded by the reader on the pupil's card and is checked on the chart by the checker. As the various sections are filled, they are checked off on the chart as closed. This method is described in detail in the article on schedule-making in the Grand Rapids school referred to above.

A very interesting device[1] for making individual schedules is employed in the DeWitt Clinton High School in New York, consisting of a series of thirty non-conflicting blocks so arranged that each subject falls at a different period on each day of the week. A sample block is as follows: Monday 1, Wednesday 4, Friday 5, Tuesday 2, Thursday 3, the numbers representing the period at which the subject falls on the day designated. With the entire schedule conforming to this arrangement, it is a very simple matter to make the schedule of any pupil. In the Stuyvesant High School in New York a most ingenious mechanical device is used consisting of a strip of wood with revolving spindles by

[1] Henry B. Penhallow, "A System of Program-Making" (1912).

means of which a committee of teachers, with the assistance of a group of boys, make out, in a surprisingly short time, the schedules of over five thousand pupils.

If pupils make out their own schedules, it is necessary to devise some plan by which these may be checked up as they are made, and a tally sheet kept in order to prevent great inequality in the size of sections. In the St. Paul High School in which pupils who pass in all their studies are allowed this privilege, the schedules are tallied in the order Seniors, Juniors, Sophomores, Freshmen, because in cases of conflicts and filled classes schedules of the lower classes are more easily adjusted. However, as a rule, classes fill up evenly. This is not possible where all pupils make their own schedules unless some accurate method of checking is employed. In the University High School at Chicago with four hundred pupils, this method was employed for a number of years under the author's direction. The system was so organized that the results were checked on the spot and no overcrowded sections resulted. The pupils' elections were made and the schedule of recitations completed before the end of the previous year. Just before the regular opening of the year the pupils of each class met in one room for a period of two hours. On entering the room each was given a printed schedule of recitations and a card on which was written his approved list of subjects for the year. He then proceeded to make out his schedule, choosing such hours and teachers as he wished. This he presented to a teacher, one each for boys and girls, who acted as inspector and signed his initials in approval if the schedule conformed to the election blank. His approved schedule he then presented to a clerk. This clerk had in open filing cases sets of cards properly designated for each subject and section corresponding in number to the number of pupils to be assigned to each section. This clerk took from these groups of cards one for each item on the pupil's schedule. These cards were then attached with a clip to the pupil's schedule card and were passed to another clerk who at once wrote the pupil's name on each class card and re-assorted them in filing cases under their appropriate headings. The dummy class lists from the files of the first clerk thus became the actual class lists in the files of

the second clerk. Each pupil retained a duplicate copy of his schedule. As soon as the class cards for any section in the dummy files were exhausted this section was known to be full and a bulletin to this effect was placed upon the board. In fact, such a bulletin was posted when there were five places still remaining in order to provide for difficult adjustments which were likely to arise. In case a pupil presented a schedule involving some class already filled, he was sent back to try a different combination. As soon as the registration of a given group was thus completed, the lists of pupils in each section could be at once made from the cards on file. This method has the advantage that only those pupils who are in actual attendance are included in the files and the corresponding class lists, and each pupil has in his own hands his schedule for the term before the opening day. It requires more time and is more difficult to administer than the usual method of arbitrary assignments. It should be stated that this plan has been discontinued in the University High School.

In the various blanks employed in schedule-making it is important that some system of designations be employed showing in concise form all the items of information necessary to the process. It is customary to designate by Roman numerals the courses in a given subject, e.g., Latin I, Latin III, indicating the first and third year in that language. The year in which the pupils are classified may be indicated by Arabic numerals; if there are two or more sections in the same subject, they may be designated by letters, e.g., French I_{2b} would indicate the first year in French taken by second-year pupils of section *b*. The teacher's name may be indicated by an initial letter. In the English High School, Boston, the designation P_{31} Mi means Physics, a third-year subject, reciting in block 1, taught by Mr. Miller. In any given school, the designation should be simple, uniform, and complete.

It is desirable that the finished schedule be printed or otherwise presented in the most pleasing form possible, making easily available the information necessary to determine at any hour of the day just what work is in progress in each department of the school.

The most important points in schedule-making may be summarized as follows:

1. Several weeks before the close of the semester all pupils who are to continue in the school and those who are to be promoted from the elementary school should, under careful guidance, make their elections of studies for the next semester. Their elections, once made, should not be changed except for valid cause.

2. A detailed tabulation should be made of the number of pupils who are to be enrolled for each subject for the next semester.

3. The schedule should be made to conform to this tabulation and to meet such conditioning factors as number and capacity of class and study-rooms, the number and adaptability of teachers, number and length of periods, laboratory and shop periods, subjects meeting an irregular number of times a week, single-section subjects, pupil fatigue, and the general assembly.

4. The *block* method of schedule-making is preferable to the *mosaic* method.

5. The individual pupil's schedule should be made out before the opening day of the new semester.

6. The principal's aim should be to have each pupil with his schedule in his hand, each teacher with his class lists on his desk, and all assigned to rooms for recitation and study in sections of suitable size at the opening session of the semester.

7. Good administration will make all this possible and will relieve the principal of undue labor by the enlistment of the assistance of the teachers and pupils of his school.

Educational Writings

REVIEWS AND BOOK NOTES

A survey of high-school Latin.—The more remarkable achievements of the last two decades in the measurement of accomplishment in school subjects have for the most part concerned the elementary school. For a variety of reasons the investigation of problems in the methods and technique of high-school work has lagged far behind. Any contribution to this latter field is therefore doubly welcome, and the recent survey of Latin instruction in New Hampshire[1] is one which will assuredly prove suggestive as a pioneer study of this sort.

The purpose of this investigation was stated to be the testing and evaluation of "present aims, methods, and practices in . . . . the teaching of Latin in secondary schools." Seven problems were selected for attack, among them questions as to the extent to which the schools are now succeeding in producing a mastery of the Latin language, the methods proving most successful in practice, the relation of knowledge of grammar and vocabulary to ability in translation, and the relation of time spent to results achieved. No attempt was made to settle the broader issues as to the educational value of Latin and its place in the curriculum, but the findings inevitably throw some light upon such questions.

For purposes of the investigation, four tests were devised and evaluated: a continuous passage from Caesar of which pupils were to translate as much as possible in fifteen minutes; a scale of twenty sentences for rendering into English with unlimited time; a similar scale of grammatical constructions which the pupil was asked to explain; and a vocabulary of fifty Latin words to be identified.

Twenty-nine schools were examined, and each test was applied to from eight hundred to two thousand individuals.

The results were such as fully to justify the contentions of many of the bitterest critics of Latin in our schools. The sentence scale, for example, revealed that at the end of four years of Latin instruction the average pupil can translate just over six of the easiest of twenty sentences, all of about the difficulty of those in a beginner's text. On the connected passage from Caesar, pupils at the end of the fourth year showed "an average ability to write in

[1] H. A. Brown, *A Study of Ability in Latin in Secondary Schools*. Oshkosh, Wisconsin: State Normal School, 1920. Pp. x+170.

English in fifteen minutes the thought of a little less than fifteen lines of Latin, with about eight and a half lines correct." The test on grammar gave twenty sentences with translation supplied, each illustrating a single familiar construction. In more than half the schools first-year classes failed to average a single answer correct. The average score of fourth-year pupils from all schools indicated an ability to explain just seven of the twenty examples. Only in the vocabulary test was any fair measure of success achieved, and this is important chiefly as pointing the moral that mere ability to recognize words does not make an intelligent translator.

In all the tests progress shown in the upper years is remarkably small. If allowance could be made for the elimination so strongly operative among Latin students, these returns might be interpreted as meaning no real advance whatever above the second year. The report is curiously silent upon this point, so significant in its bearings on the whole.

The findings of most immediate practical interest are doubtless in those sections of the report which compare the results obtained from different teaching practices. The principal issue is the justification in educational returns for the large amount of time devoted in many schools to the study of Latin grammar. To obtain light upon this, the schools were classified in three groups of eight each. Group I includes those schools which follow most closely the so-called "translation method," Group III those which lay most stress upon grammar and syntax. The results of the tests were decidedly in favor of the former. It is perhaps not surprising that pupils in these schools should show marked superiority in the translation of connected prose, but many will find it strange that they were also, during the first three years at least, abreast of Group III in ability to explain grammatical constructions. When to these points are added figures showing that schools employing the grammatical method devote approximately 25 per cent more time to the subject, the relative inefficiency of this method becomes strikingly manifest. It is, however, interesting to remark one fact nowhere commented upon in the text. The schools of Group II, made up of those which follow Group III in placing chief emphasis in the first year upon formal grammar but later shift to rapid translation, achieve results almost uniformly superior to either of the other groups in all tests save that of connected translation—even there their record runs a close second to Group I. It must be admitted, though, that this superiority is achieved at a somewhat disproportionate cost in time.

The number of schools examined was, of course, too small for any findings to be final. A study of the records of graduates from these schools in their subsequent university courses in Latin indicates pretty clearly, however, that the quality of their previous instruction has been above rather than below the country average. When consideration is given the further fact that the investigators have discarded results from schools or classes exceptional by reason of particularly gifted or deficient teachers, the striking agreement in the indications obtained must assuredly command respect.

Education and the theory of habit.—Each textbook in educational psychology is likely to be organized around some particular emphasis in general psychology, and to find its occasion in the conception that some particular theory has not been given proper emphasis in earlier texts or in general practice. Professor Edwards clearly states the consideration which prompts his new book[1] as follows: "The writer thinks that the habit theory has not received its due in educational practice and perhaps not in educational thought." Education he defines as "the making, modifying, and remaking of more or less permanent dispositions, tendencies, habitudes, or, to use a single term, habits, *under the guidance of ideals.*"

The earlier chapters of the book support this view of the nature of education, the arguments of the author being reinforced by copious quotations. Later chapters deal in a similar way with the problems of learning and the learning curve, the transfer of training, and fallacious habits of thought. The treatment throughout is consistent with the announced theory of the book, so that emphasis on motivation and the supervision of study habits is not unexpected. Some topics are developed almost wholly by specific instances, given as illustrating "concretely and vividly the application of psychological laws."

As a textbook it is well planned to give the student a unified working theory of educational psychology, excellently relieved of non-pertinent material. Some important matters, as, for example, individual differences and changes with the increase of age, receive only incidental attention. A brief classified bibliography and a somewhat comprehensive bibliography of references used in the text add to the value of the book as a work of reference. The multiplicity of quotations affects the style of writing unfavorably and many of the sentences are overloaded.

Unfortunately the publishers have given little thought to the mechanical makeup of the book, and its appearance is anything but attractive. The reading of the text is rendered both more difficult and less enjoyable by the monotony of crowded pages. The content of the book is of sufficient worth to justify more thoughtful consideration of the mechanics of its presentation.

Reorganized science.—Much interest attaches to the report[2] recently issued by the science committee of the National Education Association Commission on Reorganization of Secondary Education. A committee consisting of forty-seven science teachers has been working for over seven years on the problems involved in the readjustment of science courses to the present-day needs of secondary-school instruction. The committee was organized with a small

[1] A. S. EDWARDS, *The Fundamental Principles of Learning and Study.* Baltimore: Warwick & York, 1920. Pp. 239.

[2] "Reorganization of Science in Secondary Schools," *Bureau of Education Bulletin No. 26,* 1920. Washington: Department of the Interior.

supervisory committee and subcommittees, representing each of the sciences included in the report. Conferences concerning the material to be included in the report were held in all parts of the country in order that the freest possible discussion might be secured. Studies were made of progressive experiments in science-teaching in many schools, and the results of these experiments have been included in the report. Due to these conferences and to the progressive type of work upon which they were based, much of the material included in the report has been already incorporated into the practice of many schools. The report is therefore not so much an argument as to what ought to be done in the schools as it is a record of work already accomplished by progressive science teachers. As explained in the introduction, the organization of subject-matter for science courses, as proposed by this report, is based upon

a) Numerous studies of the tendencies in science teaching in the country at large, and particularly in secondary schools in which experimental work upon reorganization has been undertaken.

b) The experience and judgment of science teachers who have studied modern needs of science teaching.

c) The judgment of supervising officers and professors of education as expressed in their writings bearing upon science teaching and in their criticisms of the manuscript of this report.

The report consists of two parts. Part I discusses the general aims and purposes of science instruction, and the general principles governing the selection and presentation of material, and outlines proposed science sequences which are found to be appropriate for use in each of several types of secondary-school organization.

Part II presents a separate treatment of each of the principal courses in science, taking account of such matters as the selection of material, aims, and methods of instruction, differentiation for certain curriculums. Specific suggestion is presented in the form of selected outlines for the treatment of sample topics and discussion of certain devices which may be used as aids in instruction, such as reference books and magazines, individual reports, excursions, and science clubs. An appendix presents a two-page discussion of the science teacher. Leadership, scholarship, and professional spirit are defined and emphasized as the fundamental qualities that make for success in science-teaching.

Teachers and administrators concerned with the various problems which constantly arise in connection with the teaching of the several science courses of secondary schools will find this report suggestive in its presentation of principles of procedure which may be confidently relied upon, and directly helpful in its more specific treatment of many features of the work of reorganization of such courses.

Training store-workers.—Far more general interest attaches to the report of investigations made in the research department of the Women's Educational

and Industrial Union than its very specific title, *Training for Store Service*,[1] would suggest. It is typical of the best in the research on which vocational education must be based and employs a technique significant for all types of curriculum studies. For example, fully one-half of the book is devoted to the study of the numbers, distribution, qualifications, and careers of juvenile store employees, and of the nature of the several forms of employment in which they are engaged. With this study made, the determination of proper training is reduced to the answering of very specific questions.

Indicative of both the need and possibility of training for store service is the great increase in the size of mercantile establishments and in the number of employees.

> Such an aggregation of employees points to a Mercantile Revolution comparable to the Industrial Revolution of the past century. It makes possible the division of selling activities into many simple tasks which may be undertaken by juvenile workers. . . . . Store managers, like factory managers, must standardize their tasks, stabilize their working forces, and develop intelligent and devoted heads of departments.
>
> Thorough training must compensate for lessened personal interest. . . . . Without such educational activities, the great stores may find it difficult to compete with the many small shops where every detail of the business is closely supervised by interested owners [p. 17].

The secondary school has an unusual opportunity to give vocational training to store-workers.

> Three out of five (of store employees 14 to 21 years old) had received secondary-school training and two out of five had spent more than two years in secondary schools. It is evident that mercantile establishments have but few positions suitable for persons who have received a limited education [p. 36].

Selling is the work of only some 20 per cent of juvenile employees. Another 20 per cent serve as clericals. The remaining 60 per cent find employment in subsidiary activities. However, "when adult years are reached, nearly one-third have been promoted to selling positions." Because of this and the other values of the courses, the author thinks that secondary-school emphasis on salesmanship is not "educational waste."

Study is also made of the amount and seasons of "shifting," of the extent to which it means mere change of employers as opposed to change of occupation, and of the characteristics of extreme shifters. A rather definite program is suggested by which such loss can be reduced by care in store organization.

The function of the elementary school in the training of these workers will be performed by emphasis on social relations and personal habits and a refocusing of some of the elementary branches. The program for continuation and secondary-school training is more specific and elaborate, while a great work

[1] LUCILE EAVES, *Training for Store Service. The Vocational Experiences and Training of Juvenile Employees of Retail Department, Dry Goods and Clothing Stores in Boston.* Boston: Richard G. Badger, 1920. Pp. 143.

will remain for an instructional staff of the store organization, meeting the workers at the less busy hours of the day.

An appendix gives, besides a list of basic statistical studies not reproduced in the report, some suggestive outlines developed by the educational departments of great stores, and suggested titles for a store library.

Americanization.—One of the most important tasks of our democracy is the assimilation and Americanization of its heterogenous racial elements. The effective performance of this task is necessary if America is to retain those ideals of democracy which have characterized her in the past.

The recent war has given great momentum to the Americanization movement. Federal, state, and municipal, as well as numerous philanthropic and industrial, organizations are now actively interested. The present problem is to plan wisely and organize efficiently.

In this work of Americanization, which is in the broad sense almost entirely educational, the teacher is of first importance. Normal schools, boards of education, and others who are planning to train teachers for such work will welcome a recent book[1] by Peter Roberts, and a bulletin[2] of the Bureau of Education which bear directly on this problem.

The book by Mr. Roberts is a concrete, suggestive treatment of the general problem of Americanization. It is designed to aid those who give all of their time, or only a part as in evening schools, to the work of Americanization. "It emphasizes the heritage that is ours, submits a program and plan of operation, outlines how men and women may be trained to do the work, and points to the goal which all Americanization workers should keep in mind."

Chapter i, "What is Americanization?," defines Americanism in terms of the two fundamental documents—the Constitution and the Declaration of Independence—and shows how the ideas therein expressed have been the foundation for our national life. Americanization is bringing the foreigner to understand and accept those ideas. Chapters ii and iii emphasize the need of thoroughly understanding determining racial factors. It is pointed out that the Americanization worker must have not only genuine faith in American democracy, but also a genuinely sympathetic faith in the immigrant. Chapter ii describes more particularly the work of the Americanization director, and chapter iii the approach to the foreigner. A specific Americanization program is presented, the following phases of which are discussed in separate chapters: "Teaching English," "Naturalization," "Lectures and Entertainment," "Recreational Activities," and "Advisory Councils." Different plans of organization for the work are described and the "Goal of Americanization"

[1] PETER ROBERTS, *The Problem of Americanization.* New York: Macmillan Co., 1920. Pp. ix+248.

[2] JOHN J. MAHONEY and OTHERS, "Training Teachers for Americanization." *Bureau of Education Bulletin No. 12*, 1920. Washington: Department of the Interior. Pp. 62.

is defined in terms of the virtues each alien should possess before he can be classified as a good citizen.

The book is written in an easy, flowing style. It brings at once an appreciation of the nature and importance of the Americanization problem, and an inspiration to press toward its solution. At the end of each chapter is an appropriate bibliography. It will be definitely helpful in the training of teachers and others engaged in Americanization work.

The bulletin from the Bureau of Education is more concrete in its bearing on the problem of training teachers for Americanization work, in that it outlines a course of study to be used for the purpose. It was designed particularly for normal schools and teachers' institutes. The course is divided into five parts with the general idea that if given as a whole it will cover approximately thirty hours of lectures and discussion and about twenty-four hours of observation and practice. It is given as a suggestive course to be adapted to special needs. The topics are appropriately chosen and cover a wide scope. Suitable bibliographies are given with each subject for discussion. There is an extensive bibliography dealing with racial backgrounds, etc. Besides other matters of interest, the bulletin contains a report of the Committee on Teacher Training for Americanization.

Library hints.—It is now generally recognized that the school library must be regarded as a workshop quite as indispensable as any science laboratory and doubtless even more influential since conditioning the work of not one but many different departments. Yet a surprising percentage of even our larger schools still face the necessity of organizing and maintaining this all important adjunct without the full-time services of any specially trained librarian. In such cases the need is pressing for a handbook which presents, in the least possible compass but with great clearness and detail the best practical rules and the technical information needed for the development and administration of a library.

Such a handy reference guide is that[1] published by the H. W. Wilson Company. Out of an unusually wide experience in the supervision of school libraries in several states the author, Miss Martha Wilson, has "brought forth riches new and old." Without waste of words, often in outline form, she has condensed into her pages the most helpful detailed and concrete directions bearing upon all aspects of the management of libraries in grade and high schools. Scarcely a phase or problem on which the novice would require enlightenment but is definitely dealt with here, while among the multitude of highly specific practical suggestions there cannot fail to be some of novelty and profit to even the most experienced. The volume may be confidently relied upon to perform its definite service.

[1] MARTHA WILSON, *School Library Management*. New York: H. W. Wilson Co., 1920. Pp. 142.

Literature and current events.—The great demand for a better understanding on the part of children of great issues in current events is compelling teachers to search for really worth-while material. Messrs. Speare and Norris of the faculty of the United States Naval Academy have compiled a book[1] of selections bearing on current problems which will prove helpful in this regard.

The fifty different selections are grouped under eight general headings. For example, under Group III, "Some Problems of Readjustment," we find "National Welfare Defined Industrially," a reprint from *The Saturday Evening Post*, being an extract from an article by Herbert Hoover. Under Group V, "The Essentials of World Peace," we find "Peace through Democracy" by Elihu Root. This article is a reprint from *International Conciliation* for August, 1917.

Every article has been chosen with regard to its English style, as well as the importance of the issues it presents. It offers opportunity to the student of coming in contact with the opinions of leading men on subjects of vital interest. The book is intended primarily for use in English classes, but may also be used in history and civics classes.

Physics in everyday life.—It is all too evident that the average high-school course in physics, by strict adherence to the conventional "forty experiments" and habitual catering to the requirements of the scientifically minded few, has largely forfeited its original advantage as that subject inherently most fascinating to the majority of boys. The introduction of more democratic "project" courses dealing directly with the multitude of mechanical appliances and phenomena within the practical experience of the ordinary citizen is, however, doing much to restore the subject to its rightful position and popularity.

A recent manual[2] of the newer type is rich in the sort of material needed by instructors seeking to place their work upon a more practical footing. The experiments in this book will appeal strongly to any boy with a normal taste for "taking things apart." Not merely the usual force pump, electric motor, and camera, but clocks, gas-heaters, thermos bottles, phonographs, telephones, vacuum cleaners, sewing machines, and a Ford engine, all are made to yield up their true inwardness to the inquiring student. So far as possible the kinds of apparatus selected are of the sort which "really do something." The cleaners clean, the wireless wires, and the sphygmometer is actually used to determine the blood pressure of the experimenters themselves. The practical bearings of the problems may perhaps be inferred from the series of studies

[1] MORRIS EDMUND SPEARE and WALTER BLAKE NORRIS, *Vital Forces in Current Events*. Ginn & Co., 1920. Pp. vii + 284. $0.88.

[2] FREDERICK F. GOOD, *Laboratory Projects in Physics*. New York: Macmillan Co., 1920. Pp. xiii + 267.

comparing the cost of heating a given room by the different methods—wood and coal stove, fireplace, gas and electric heater, and basement furnace.

In most experiments the drawing of the apparatus is sufficiently clear to avoid the necessity of verbal instructions, while the points to be made are developed by a series of questions to which the pupils must discover the replies. Not a little is thus left to the intelligence and ingenuity of the individual.

As the familiar demonstrations of less concrete character are also included, the ninety-five experiments described afford a quite unusual option for both instructor and student. The Appendix gives a complete list of the apparatus required for each experiment, together with address of the proper supply house and the price prevailing in each instance.

A high-school economics text.—The significance of economic factors in social well-being makes instruction in economics a necessary feature of education for citizenship. That it may reach a maximum number of prospective citizens, it must be begun as early as the maturity of the pupils permits. It becomes increasingly evident that how early this may profitably be depends on the nature of the presentation. Experimentation to this end would be adequate justification for the large number of recent high-school texts in this field. Varying views on economic problems is, of course, a further explanation.

Professor Carver's text[1] has high merit both in its presentation and in its doctrines. It possesses clarity and progressive organization—two cardinal virtues in a textbook. Economic theories are introduced so gradually as to be freed as much as possible from difficulty, the opening chapters preparing for the later more technical discussions.

The theory of the textbook is that the solution of most economic problems lies in securing a properly "balanced" population. "Probably the most important of all problems of statesmanship, and at the same time one of the most difficult, is that of balancing the population so that no particular class of labor is either oversupplied or undersupplied with respect to any other class." Reference is made here not merely to particular crafts or trades but to all types of productive agents, skilled and unskilled, managerial and investing.

Distinctly opposed to socialism, the book advocates a minimum of regulation or compulsion.

> A liberalist in economics is one who believes in the freedom of the individual rather than in compulsion. He believes that individuals will, without compulsion and by voluntary agreement, do most of the things that are necessary to provide for the needs of the community. He believes that it is not necessary to impose upon the individual the authority either of a benevolent despot or of a well-meaning majority [p. 387].

[1] THOMAS NIXON CARVER, *Elementary Economics*. Boston: Ginn & Co., 1920. Pp. viii+400. $1.72.

The book is general throughout. It is a presentation of principles rather than a discussion of problems. The chapter on labor organizations discusses strikes without reference to arbitration, compulsory or voluntary. Nor is there mention of profit-sharing, shop councils, or other more recent developments in the relations between labor and capital. The statement that "from the standpoint of the liberalist much of our recent so-called social legislation consists of bread pills," broadly interpreted, probably explains these omissions.

A high-school English text.—A textbook[1] which is the outcome of a course of lectures on the teaching of English delivered in the summer schools of Johns Hopkins University for the years 1918 and 1919, has recently been published. The discussion is thoroughly abreast of the very latest pronouncements on the different topics covered, and the bibiliographies which occur every few pages are full almost to a fault. The book is in fact, particularly in the earlier portion, essentially a digest of the best current thought on the subject. It is, accordingly, not surprising that the influence of the *English Journal* and of Ward's *What Is English?* should be uppermost throughout the discussion of the language aspects.

The development of a sentence conscience Miss Simons would have the prime concern in the junior high school period at least. Along with this, a steadily increasing interest in and taste for "words, mere words" is of great importance. Miss Morse is cited as authority for the statement that "the words 'assassin' and 'bedlam' have been known to offer as much narrative interest as a short story."

There are a number of the always welcome devices for motivating oral and written composition and intelligent listening. The productive possibilities of dramatization are well set forth. The emphasis placed upon the value of imitative composition by high-school pupils as a factor in developing both appreciation and style is more than justified by the example of student productions quoted. Few teachers will read these without feeling a strong desire to go straightway and cultivate similar fruit. As to whether or not such exercises have proved really profitable for the majority or only for the gifted few, Miss Simons neglects to state.

The book is emphatic in its insistence upon the complete separation of literature from composition classes, though it does not appear to take the extreme position that these should be under different teachers. The discussion of the work in literature is keenly alive to the importance of a successful beginning. The devices and gentle gradations by which a class may thereafter be led from magazines and current short-story fiction to a grapple with Burke's classic are skilfully presented.

[1] SARAH E. SIMONS, *English Problems in the Solving*. Chicago: Scott, Foresman & Co., 1920. Pp. 239.

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BEESON, MARVIN F. *Educational Tests and Measurements.* Greeley, Colorado: State Teachers College, 1920. Pp. 66.

BUSWELL, GUY THOMAS. *An Experimental Study of the Eye-Voice Span in Reading.* "Supplementary Educational Monographs," No. 17. Chicago: Department of Education, University of Chicago, 1920. Pp. xi+105. $1.00.

CUBBERLEY, E. P. *Readings in the History of Education.* Boston: Houghton Mifflin Co., 1920. Pp. xxv+684. $3.75.

CUBBERLEY, E. P. *The History of Education.* Boston: Houghton Mifflin Co., 1920. Pp. xxiv+849. $3.75.

MICKEL, ADELAIDE. *Stenciling.* Peoria, Illinois: Manual Arts Press, 1920. Pp. 62. $0.85.

OVERMAN, JAMES ROBERT. *Principles and Methods of Teaching Arithmetic.* Chicago: Lyons & Carnahan, 1920. Pp. v+340.

ROBERTS, PETER. *The Problem of Americanization.* New York: Macmillan Co., 1920. Pp. ix+246.

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BISHOP, MILDRED C., and ROBINSON, EDWARD K. *Practical Map Exercises in Medieval and Modern European History.* Boston: Ginn & Co., 1920. Pp. 24.

BUZZA, KEESEN, and HURT, E. E. *La Langue Française.* New York: E. P. Dutton & Co., 1920. Pp. 246. $1.50.

DAVISON, CHARLES. *The Elements of Plane Geometry.* Cambridge, England: The University Press, 1920. Pp. 280.

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HAWKES, HERBERT E., LUBY, WILLIAM A., and TOUTON, FRANK C. *Plane Geometry.* Boston: Ginn & Co., 1920. Pp. vii+305. $1.32.

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